


# CADUCEUS

*A Humanities Journal for Medicine  
and the Health Sciences*



*When Did a Random Patient Benefit  
from a Random Physician?*



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LAWRENCE J. HENDERSON, 1878–1942

*(Courtesy of the National Library of Medicine)*

## When Did a Random Patient Benefit from a Random Physician?

William G. Rothstein, *Guest Editor*

The researches of medical historians in the past quarter century have provided systematic scholarship to support the general impression that the great progress in twentieth-century clinical medicine and surgery is unique in the history of medicine. It is now accepted that during and before the nineteenth century, the great majority of medical treatments were ineffective or harmful; the medical profession was only one of many groups of health care providers sanctioned by the public; and physicians, divided into three major groups in nineteenth-century America, engaged in endless professional disputes over everything from the basic causes of disease to principles of treatment.<sup>1</sup>

Medical historians have also examined the introduction of many beneficial modern treatments. Both medical and general historians have depicted those treatments as being acclaimed immediately by a grateful public and adopted promptly by an appreciative profession. Yet recent historical research has shown that most were adopted only after a lengthy process marked by controversy and confusion, and that universal acceptance occurred only after a new generation of physicians was educated in their use.<sup>2</sup>

Such findings have often perplexed those who wish to know when clinical medicine made the transition from largely ineffective or harmful to largely beneficial. The current state of medical history makes it appropriate to ask experts in various subfields of medical history to propose a time when the transition occurred in their subfields. That is the purpose of this collection of articles in *Caduceus*.

The idea of dating the transition from a largely ineffective to a largely beneficial era of clinical medicine is not new. The best-known attempt to answer the question has been attributed to Lawrence J. Henderson (1878–1942), an eminent American physiologist, biochemist, and social theorist who, like many scientists of his era, received an M.D. degree but never practiced medicine. Henderson has been quoted as saying that in about the year 1910 or 1912 it became possible to say of the United States that a random patient with a random disease consulting a doctor chosen at random stood better than a fifty-fifty chance of benefiting from the encounter. Although the statement has not been located in a published work by Henderson, the opinion expressed was widely shared and serves as a useful point of departure for these essays.<sup>3</sup>

Henderson's statement has three components that apply to all articles in this collection: (1) a physician's use of *clinical medicine or surgery* (2) to treat *individual patients* (3) who are *already ill*. Those important qualifications exclude the medical sciences, public health, and preventive clinical medicine. Furthermore, patients can benefit from encounters with physicians in ways other than medical therapy. Patients can sometimes derive as much value from an accurate diagnosis of their condition and prediction of its future course as they can from treatment, especially when the condition is self-limited.

It is universally agreed that the transition occurred during the twentieth century, because practically all modern treatments were developed or greatly improved since 1900. Yet the specific dates chosen by Henderson are quite problematic. The determination of a date is made especially difficult by the many changes in areas of medicine other than the body of medical knowledge. Those include: the types of illness that occur in the population, the age distribution of the population, the training and types of health care providers, and the institutions in which medical care is provided. Each factor has had a profound impact on medical care.

During the first half of the twentieth century, the types of illnesses that afflicted the American population changed in fundamental ways. Up to that time, the major causes of death were infectious diseases; and the victims of the most important ones—pneumonia, influenza, tuberculosis, and gastrointestinal infections—were primarily infants, children, and young adults. Death rates from infectious diseases declined continuously during the twentieth century (beginning in the late

nineteenth century for some diseases and in the early twentieth century for others). By 1950 tuberculosis and gastrointestinal infections were no longer important causes of death, and pneumonia and influenza had become insignificant as causes of death among the young, although they remained major causes of illness.<sup>4</sup>

Three factors are considered to be of paramount importance in producing that momentous decline in infectious disease mortality rates: medical treatments, the standard of living of the population, and public health measures. It is generally agreed that medical treatments were the least important. Antibiotic treatments for bacterial diseases were developed after the decline in bacterial diseases had been underway for decades and, in some cases (such as tuberculosis), even after the diseases had ceased to be major health problems. Improvements in the standard of living, on the other hand, directly affected health and disease early in the twentieth century. Better housing and fewer children per family reduced the spread of disease from child to child, such as occurred when sick and healthy children shared beds. Indoor plumbing increased cleanliness generally and eliminated disease transmission by communal privies. Iceboxes reduced both food spoilage and gastrointestinal disorders. Modernization of schools, especially in washrooms, reduced the spread of disease. Safer and healthier workplaces reduced injuries and disease. Improved nutrition for the many children who suffered from malnutrition enhanced their ability to resist disease. Public health measures were also important. Those included sewage and garbage disposal, pure water and milk supplies, control of insect vectors and rodents, sanitary methods of commercial





*A Public Health Service physician examines a girl in a tuberculosis clinic, circa 1918*

*(Courtesy of the National Archives)*

food preparation and storage, community health and education campaigns concerning the transmission of infectious diseases, medical inspections of school-children, and, somewhat later, vaccines.<sup>5</sup>

As fewer infants, children, and young adults died from infectious diseases, more people survived to old age, primarily because death rates from age two to about age fifty are very low in the absence of infectious diseases. Life expectancy at birth for men increased from 46.3 years in 1900, to 58.1 years in 1930, to 65.6 years in 1950. Life expectancy at birth for women increased from 48.3 years in 1900, to 61.6 years in 1930, to 71.1 years in 1950. That produced a substantial increase in the number of middle-aged and older persons, so that Americans forty-five or more years

of age increased from 17.7 percent of the population in 1900, to 22.8 percent in 1930, to 28.5 percent in 1950.<sup>6</sup>

The diseases of the middle aged and the elderly differ greatly from those of the young. They consist of chronic and degenerative diseases like heart disease, stroke, cancer, and diabetes. Unlike infectious diseases—most of which have a rapid onset, a short course, and full recovery or death as the outcome—chronic and degenerative diseases have a long latency period, a period of illness that can last for decades, and a low likelihood of a return to the state of health that preceded the illness. Persons with chronic diseases require continuous monitoring and treatment and therefore make different demands on the health care system than do those with infectious diseases.<sup>7</sup>

The first half of the twentieth century brought many changes in the provision of medical care. One major change occurred in the locus of health care. Although most physician visits continued to occur in patients' homes during the first half of the twentieth century, hospital inpatient and outpatient facilities became important centers of medical care. Several types of hospital care grew especially rapidly: surgical operations; new diagnostic tests like X rays, chemical tests of body fluids, and electrocardiograms; obstetrical deliveries; and outpatient care for the poor and others. Hospital care and administration were standardized by the establishment of hospital nursing schools and the employment of professional administrators. Hospital patients were subjected to many more diagnostic tests and treatments than were patients treated at home.<sup>8</sup>

The first half of the twentieth century produced higher-quality professional training and new health care occupations. By the 1920s most medical students were college graduates and the medical school curriculum had been strengthened and standardized. Clinical training was improved by the internship, in which medical school graduates spent a year or two gaining practical experience in a hospital. The growing number of medical specialties enhanced the skills available to patients. New occupations, such as nurses and laboratory technicians, improved health care, especially after the establishment of formal educational programs.<sup>9</sup>

Not all changes in medical care during the first half of the nineteenth century were beneficial. One basic problem was a growing shortage of physicians. Mergers and closures reduced the number of medical schools by half between 1900 and 1925, producing a steady fall in the ratio

of physicians to population during the first half of the century. Increased demand for the services of physicians resulting from improvements in medical care exacerbated the effects of the shortage, especially in rural areas that attracted few young physicians.<sup>10</sup>

The growing number of part-time and full-time specialists had a mixed impact on the quality of care. Most residency training programs for specialists developed without regulation or oversight and were deficient or grossly inadequate in the quality and length of training. Formal certification of specialists was just beginning and was ignored by many specialists, especially the large number of part-time ones. Hospitals, which were not legally liable for the quality of care provided by their physicians, gave staff privileges (including use of operating rooms), to practically all licensed physicians. In some specialties, the large amount of care provided by the burgeoning number of self-proclaimed and poorly trained specialists produced a deterioration in the overall quality of care provided by the specialty.<sup>11</sup>

Medical advances led to a mindset among physicians that was too often uncritical and faddish. The growing availability and variety of therapeutic procedures led to a willingness to treat or operate without properly balancing the risks and benefits. Proper use of many innovations was also hindered by the rapid pace of change and the obsolete medical education obtained by many physicians who graduated from medical school early in the century.<sup>12</sup>

Hospitals in the first half of the century were severely underfunded and relied heavily on inexperienced nursing students and unpaid interns to provide medical care. Professional graduate nurses were



first employed by hospitals in large numbers only in the 1930s, when the Depression forced many hospital nursing schools to close or reduce enrollments. Most interns had received little clinical training as medical students and were far from able to assume responsibility for the care of patients. Furthermore, as the demand for interns increased and the supply of medical school graduates decreased, hospitals were forced to lower standards for selecting interns.<sup>13</sup>

Many therapies did not improve in the first half of the twentieth century. Useless or harmful treatments continued to be widely used in many conditions, and few effective treatments were introduced for such emerging diseases as coronary heart disease and cancer.<sup>14</sup>

Thus, Henderson's "random patient with a random disease consulting a doctor chosen at random" must be considered in the context of steadily changing types of patients, diseases, and health care providers. Patients were becoming older, diseases were changing from infectious to chronic and degenerative, and health care providers were becoming more specialized. The locus of care, especially in serious illness, began to change from the patient's home to the hospital, which underwent significant changes during the era.

Consequently, determining a date for the transition from a largely ineffective or harmful era of clinical medicine to a largely beneficial one involves an extremely complex judgment. New benefits must be balanced against new problems. Different specialties within medicine experienced the transition at different times. Within each specialty the dates are sufficiently uncertain to produce justifiable disagreement among medical historians. Addressing the question, however, will

enlighten all concerned.

The essays in this collection are written by scholars with exemplary knowledge of the history of medicine and distinguished scholarship in specific areas of the field. Their contributions provide a stimulating variety of opinions that demonstrate that all aspects of medicine did not change simultaneously.



## Notes

1. William G. Rothstein, *American Physicians in the Nineteenth Century: From Sects to Science* (Baltimore: Johns Hopkins University Press, 1972).

2. For the reaction of nineteenth-century physicians to antiseptic surgery and bacteriology, see *ibid.*, 249–81.

3. For various transcriptions of Henderson's observation, see, for example, Grace Budrys, *Planning for the Nation's Health* (New York: Greenwood Press, 1986), 2, and Herrman L. Blumgart, "Caring for the Patient," *New England Journal of Medicine* 270, no. 9 (1964): 449.

4. William G. Rothstein, "Trends in Mortality in the Twentieth Century," in *Readings in American Health Care: Current Issues in Socio-Historical Perspective*, ed. Rothstein (Madison: University of Wisconsin Press, 1995), 71–86.

5. *Ibid.*, 77.

6. U.S. Bureau of the Census, *Historical Statistics of the United States, Colonial Times to 1970*, 2 vols. (Washington, D.C.: U.S. Government Printing Office, 1975), 1:15, 55.

7. Rothstein, "Trends in Mortality in the Twentieth Century," 78–83.

8. Rosemary Stevens, *In Sickness and in Wealth: American Hospitals in the Twentieth Century* (New York: Basic Books, 1989); Joel D. Howell, *Technology in the Hospital: Transforming Patient Care in the Early Twentieth Century* (Baltimore: Johns Hopkins University Press, 1995).

9. For changes in medical and nursing education, see William G. Rothstein, *American Medical*

*Schools and the Practice of Medicine: A History* (New York: Oxford University Press, 1987), 134–78. For the development of medical specialties, see Stevens, *American Medicine and the Public Interest* (New Haven: Yale University Press, 1971).

10. Rothstein, *American Medical Schools and the Practice of Medicine*, 119–21.

11. *Ibid.*, 119–20, 124–25, 142–43.

12. *Ibid.*, 122–25, 134–39; Benjamin A. Barnes, “Discarded Operations,” in *Costs, Risks, and Benefits of Surgery*, ed. John P. Bunker, Benjamin A. Barnes, and Frederick Mosteller (New York: Oxford University Press, 1977), 109–23.

13. Rothstein, *American Medical Schools and the Practice of Medicine*, 131–39.

14. For a comparison of recommended treatments in textbooks in internal medicine in 1927 and 1975, see Paul B. Beeson, “Changes in Medical Therapy during the Past Half-Century,” *Medicine* 59 (1980): 79–99.

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# Technology and Institutions in the Twentieth Century

Rosemary Stevens

Twentieth-century American medicine has been dominated by institutions, and for most of the century those institutions have played a recognized part in advancing and displaying the growing effectiveness of physicians. Hospitals and medical schools together have celebrated science and technique as the most important defining factors for medical care in the United States: more important than the health of the population at large; more important than the provision of affordable care to all those who need it. Medical schools, urged on by leaders of the American Medical Association (AMA) and by the much-cited Flexner Report of 1910,<sup>1</sup> became centers for advanced science—so rapidly that by 1920 the United States had become an international center for education in medicine and its growing number of specialties. Hospitals grew in parallel, spurred on in importance as centers of technique. Only now, in the 1990s, is the hegemony of hospitals and medical schools crumbling under the emphasis on primary practice and managed care. It is a good time to review past successes and failures as a balancing ingredient in present debates.

Physicians were like engineers, wrote Abraham Flexner in his 1912 comparative review of medical education in Europe: "Each of these professions calls for a high order of reasoning, and for training in the

observation of fact and in the proper marshalling of facts in order to reach a correct result; each finally involves the acquisition of a high order of skill."<sup>2</sup>

Just as the modern physician, associated with the hundreds of new hospitals that sprang up in the late nineteenth and early twentieth century, was to be seen as a master engineer, generation after generation has characterized the American hospital in industrial terms as a factory or workshop. That model most nearly worked for surgery, whose efficacy and daring had reached new heights by 1910. But to Flexner and the academic leaders of medicine, hospitals were also necessary as "clinical laboratories" for the medical education of practitioner-scientists. For the research-oriented physicians of medical school faculties, hospital science was recognized in clinical laboratories, where the examination of sputum, stools, tissues, blood, and urine could be coordinated with the patient's symptoms. Hospitals also offered a collection of individuals who were sick enough to be in bed and for whom systematic case histories and differential diagnoses could be created. And hospitals provided a pool of lower-class patients on whom new drugs, methods, and procedures could be tested in return for free care.

As historian Charles Rosenberg has pointed out in his classic study of hospital

history, the resources of hospital medicine before World War I might seem primitive to us today, but they were impressive to contemporaries. The combination of antiseptic surgery, the X ray, and the clinical laboratory seemed to epitomize a new scientific medicine, one that was necessarily hospital-based.<sup>3</sup> As centers of a new medicine based on surgery and science, hospitals epitomized wider themes of progress and prosperity—a high optimism that what was broken could be fixed.

A nice example of the wider claims is the second edition of Fielding Garrison's great celebratory history of medicine, published in 1917, which carried introductory quotations that extolled the central role of the physician-scientist (and thus of hospitals) in the advancement of twentieth-century civilization. Hence this claim: If the year 1600 heralded the leadership of the priest; the year 1700, that of the merchant; and the year 1800, that of the lawyer; then in 1900 it was the physician who stood "on the prow of the conquering ship." In another quotation, the trappings of modernity are listed—including planes, automobiles, and electricity, but also major surgery: all were required, it was stated, for progress and prosperity. Indeed, "whoever would advance humanity to a higher plane of civilization, must further the work of the scientist."<sup>4</sup> Here, too, the role of "scientist" included physicians. Claims about hospitals in the twentieth century, including claims about medical successes at different periods, must be seen through that progressive, optimistic prism.

By 1910 there were at least two thousand and perhaps as many as four thousand hospitals in the United States, but they were extremely varied in size, quality, and safety, and there was some

doubt as to how useful they were in the care of most patients; nearly half of the hospitals had a 50 percent or lower occupancy rate.<sup>5</sup> One study estimated that about 90 percent of all sickness in New York City was still being cared for in private homes. The editors of the *New York Medical Journal*, which reported those findings, described them as a "shock" because they suggested underutilization of hospitals.<sup>6</sup> Before World War I, nevertheless, most patients, particularly those not needing surgery (such as patients with pneumonia or a fever) could be taken care of just as well (if not better) at home—assuming that they had a home where they could be cared for by a trained nurse, family members, or servants. Hospitals were typically staffed by inexperienced pupil nurses, and there was often little privacy. A 1912–1913 study in Dutchess County, New York, concluded that 15 percent of all seriously ill patients needed hospitalization for an array of noncontagious diseases, another 4 percent for contagious diseases, and 9 percent because of unsatisfactory homes due to crowding, sanitation, inability to cope, ignorance, shiftlessness, or poverty.<sup>7</sup> Similarly, many if not most of the destitute, unemployed individuals who crowded hospital outpatient departments before World War I were suffering from conditions for which the technical offerings of the hospital—urine and sputum examinations, blood counts, bacteriological examinations, throat and vaginal smears, Wasserman tests, and X rays—were of little avail since their ills were as much social as medical in origin: diseases of work, of overcrowding, and of ignorance, ranging from tuberculosis to rickets. Outpatients, it was claimed, were generally overdrugged and sent away.<sup>8</sup>

The clear advantage of hospitals over

# HARPER'S WEEKLY.

JOURNAL OF CIVILIZATION



*This image of a board of health physician examining a child in a New York City tenement appeared on the cover of the August 10, 1889, issue of Harper's Weekly. As late as 1910, according to one study, about 90 percent of all sickness in New York City was still being cared for in private homes.*

*(Courtesy of the National Library of Medicine)*



home care was surgery. At the Pennsylvania Hospital in 1910, for example, two thirds of the patients were surgical patients. The largest single diagnostic group was tonsillectomies and adenoidectomies, closely followed by appendectomies.<sup>9</sup> Gynecological surgery was widely done. Indeed, so rapid was the growth of technique that it was claimed in 1905 that "the specialty is so well advanced that there is not very much more progress to be made in it."<sup>10</sup> Neurosurgery and urological surgery were rapidly developing. Even in small hospitals, there was a growing stream of private patients whom surgeons were able to convince of the greater safety of the hospital over the home—not only because of the guarantee of an uneventful passage assured by the steam sterilizer, aseptic practice, and trained operating room staff but because of the glamour and impressiveness of the hospital itself.

The best hospitals of the early twentieth century were palaces of cleanliness. They had to be, after all, to guard against infections, for not until the advent of sulfa drugs in the late 1930s (followed by generally available antibiotics during and after World War II) could effective interventionist measures be taken against infection. Doctors and nurses combined to make the hospital a "hygienic machine," a medical factory where the patient offered up his or her body to treatment.

The nurse, product of one of hundreds of new hospital nursing schools based for the most part on Florence Nightingale's legacy in Britain, ruled the ward (and the nursing pupils) with a military hand that was supported by the dictates of science and efficiency. Nurses managed the hospital environment to ensure, as far as possible, safety from infection. As with the

doctor, much of the nurse's work was technological and interventionist. Nurses took the patient's pulse, temperature, and blood pressure, regulated the patient's temperature through hot and cold packs, sterilized instruments, prepared dressings, and worked as laboratory technicians. In many hospitals nursing pupils were trained to give electrical, X-ray, and Finsen light treatments under general medical supervision. In some hospitals nurse-anesthetists were entirely responsible for administering anesthetics by 1910, particularly in the Midwest. An estimated one out of every four hospitals employed nurse-anesthetists in 1911. It was only with the general use of nitrous oxide and oxygen during World War I—and with further developments in the 1920s of gas anesthesia, local anesthesia, and spinal anesthesia—that anesthesia became a basis for specialty concentration by physicians; many medical anesthesiologists of the 1930s were introduced to anesthesia during their internship by nurse-anesthetists. But the tide was shifting. By the early 1940s, physician-managed anesthesia was regarded as technologically essential to many surgical procedures, although nurse-anesthetists were by far the dominant professionals in the field. By then, the nurses' earlier roles as X-ray and laboratory technicians had largely succumbed to the establishment of separate professions.<sup>11</sup>

X rays were widely available by 1910. As historian Joel Howell has shown, however, the use of X rays as primary diagnostic aids became commonplace only after World War I: for example, only 50 percent of patients with fractures were X-rayed at the Pennsylvania Hospital in 1909, and only 24 percent at the New York Hospital in 1910. As those numbers indicate, there were large variations among health care





County Hospital, Chicago.



Postcard view of Cook County Hospital, Chicago, ca. 1911. The hospital reported sixty interns in 1914.

(Courtesy of the Southern Illinois University School of Medicine)

institutions in the use of hospital technology before World War I. Physicians at the New York Hospital, for example, did far more differential blood counts for patients with appendicitis in 1910 than did their counterparts at the Pennsylvania Hospital.<sup>12</sup> What is fascinating about those variations is that general beliefs in the promise and efficiency of science-based hospital medicine were not necessarily matched by wholesale adoption of available actual technologies. Howell concludes (and I agree) that what we may narrowly think of as “medical technology,” including X-ray equipment and other devices, was not a major drive in the formation of the American hospital, at least before the 1920s.

If surgery—and the increasing authority of the surgeon—represented the primary technological focus for hospital medicine by 1910, hospital-based professional education represented the new commitment to medical science. The rise of nursing schools, concomitant with the new hospitals, provided an essential plank in the hospital’s success. But hospitals were also becoming essential for the education of physicians, both during and after medical school.

The first survey by the AMA Council on Medical Education, in 1904, estimated that 50 percent of medical school graduates were then going on to hospital training, and many more tried to do so. When the

AMA undertook its first survey of internships in 1914, interns were a major presence in large city hospitals throughout the country. Bellevue Hospital in New York, for example, reported sixty-four interns; Cook County Hospital, sixty interns; and Johns Hopkins University, forty-two. Interns rode the ambulance, staffed laboratories, acted as surgical assistants, dealt with emergencies, and provided general help to attending physicians. Even small hospitals reported interns: hospitals like Southern Infirmary, Mobile, had one intern for the hospital's forty beds; Copper Range Hospital, Trimountain, Michigan, had twenty-five beds and one intern; and Mid-Valley Hospital, Peckville, Pennsylvania, had thirty-four beds and one intern.<sup>13</sup> In the small hospitals, the intern might take on major responsibilities for patient care. In the large hospitals, interns formed a well-defined group of (almost entirely) young men who, with the equally defined group of young women who were pupil nurses, helped to characterize the hospital not only as a center for education but also as a bureaucracy, with the patient as a cog in an organizational machine.

For some patients, particularly those of lower social class, the teaching hospital was a terrifying place before World War I (and later). Chicago reformer Jane Addams remarked caustically that the patient was not the chief concern of those hospitals at all. Training the intern seemed to come first; then came the visiting staff of physicians; third, the training of the nurse; and, only last, the comfort of the patient. The patient was treated with condescension and was woken up at inconvenient times; his or her needs were "sacrificed to the hospital's looks."<sup>14</sup> Private patients, sequestered in separate rooms and/or hospital wings, were not subjected to the

indignities of ward routine, but they too were regarded as medical "subjects" presenting a specific medical "condition."

Was the average surgical patient better off in that environment than at home? Or not being treated? The answer has to be that old chestnut "It depends." First, there was considerable concern by 1910 that unnecessary surgery was being done, born of the dangerous assumption held by both doctors and patients that surgery in the antimicrobe era was relatively "safe." Surgeon Robert T. Morris led a public battle from 1908, when he spoke at the AMA Section of Surgery and Anatomy against the temptation of the "technique that inspires a feeling of security" and "surgical art for art's sake."<sup>15</sup> One estimate in 1906 was that 30 percent of gynecological operations were unnecessary; the vogue for cesarian section was described as a "serious menace"; and operative statistics for radical surgery of cancer of the uterus was said to "dampen the enthusiasm of even the most ardent optimist."<sup>16</sup> The formation of the American College of Surgeons in 1913 was designed to upgrade, regulate, and standardize the practice of surgery in order to put a halt to such excesses—and, not least, to establish proper patient records.<sup>17</sup>

Assuming that surgery was genuinely called for, there remained for many patients (particularly in rural areas and for emergencies) the option of surgery at home. Portable surgical kits, including folding operating tables, continued to be marketed well into the century. Even leading citizens appeared to take surgery quite lightly, in our terms. For example, in the popular memoir *Cheaper by the Dozen*, there is a striking scene in which efficiency expert Frank Gilbreth apparently thought nothing of bringing a surgeon into his

home laboratory in order to demonstrate surgical operating techniques during the wholesale removal of the tonsils of his large family; he had a "dozen" children.<sup>18</sup>

Obstetrical deliveries also usually took place at home in 1910, and those might or might not be characterized as surgery or actually involve surgical procedures. Forceps deliveries and cesarian sections seemed as rational an intervention at the time as the excision of tonsils for infected throats. The big shift toward hospital-based obstetrics occurred somewhat later, most significantly after 1914, when favorable publicity in the United States was given to twilight sleep, a drug regimen developed in Germany. Hospital supervision of twilight sleep seemed essential. For that and other reasons, by the end of the 1920s hospitals were the recognized place for childbirth for middle-class Americans; indeed, more broadly, the hospital had become a consumer-oriented institution.

The clearest answer to the question of whether hospital-centered medicine benefited surgical patients in 1910 is a resounding "yes" for those with difficult or life-threatening conditions: the danger of a "burst appendix," the need to curb throat infections, safe passage through a dangerous delivery, excision of operable tumors, and patching up patients after injury. William S. Halsted's careful work at Johns Hopkins, Harvey Cushing's pioneering work in neurosurgery, and the growing fame of the Mayo Clinic testified to the potential of modern surgery as a miracle for an uncounted army of individuals. The hospital was essential for the rapid growth of surgical technique in the early twentieth century, chiefly because of its connected roles as a center for trained personnel (providing expert practice) and as a center for professional education and

the dissemination of new techniques via research and publication of findings.

The use of hospitals as centers for surgery and obstetrics for the whole population, not merely the rich (in private rooms) and the poor (in wards), was fulfilled in the boom of hospital building and hospital use in the 1920s. A study of hospital admissions in the late 1920s found that more than 27 percent of patients were in the hospital for tonsillectomies and adenoidectomies, another 16 percent for deliveries and abortions, 9 percent for accidents, and 8 percent for appendicitis: a total of 60 percent for those four conditions.<sup>19</sup> It is important to note that the patient mix represented a relatively young, otherwise healthy population, vastly different from the pattern of today. In the 1920s, the average hospital was a relatively low-key, upbeat place. Most patients left the hospital healthy—minus tonsils or an appendix, perhaps, or with the addition of a new baby. Many patients had also benefited from a welcome postoperative convalescence; the average length of stay was approximately two weeks. It was not surprising that middle-class Americans willingly paid for hospital care, or that hospitalization was increasingly seen as a consumer commodity. One study in Cleveland in 1920 found that more than 60 percent of adults admitted to hospitals paid for at least part of their care, although costs were very low in terms of today.<sup>20</sup> The stage was set for the development of hospital insurance in the 1930s and the great growth of health insurance of all kinds after World War II.

What are we to make of those patterns and events? Lawrence J. Henderson's catchy statement that by 1910 or 1912, the "random patient, with a random disease, consulting a doctor chosen at random had

... a better than fifty-fifty chance of benefiting from the encounter" has some truth to it. The major institutions of medicine had done a terrific job in the previous quarter century. Medical schools were being standardized and inspected by organized medicine, and hospitals were under increasing scrutiny. There were tough medical licensing laws and well-regarded medical journals. The rapid growth of the nursing profession brought necessary order to the bedside and to the patient, at home and in the hospital. If the random patient presented with acute appendicitis in 1910, chances were that she or he would be successfully delivered from the affliction. If the random patient faced a difficult delivery, better to be in a city hospital in 1910 than in 1880.

But having said that, what have we got? What exactly is a random patient? Is there conceivably such a person? And what about a random doctor, despite the heroic efforts to make American medicine uniformly excellent? Snapshots of a specific time gloss over the evident problem that at any given point the population includes a wide spectrum of ages. The random doctor of advanced age in 1910 might be woefully prepared in comparison with his younger brethren (and they were indeed mostly male). Moreover, the random patient might present a condition that was not readily treatable by anyone in 1910, such as diabetes, pneumonia, or tuberculosis. Or the patient might live in a place that was a medical and cultural backwater. Or might not present at all to a doctor.

The statement also makes a couple of disturbing inferences by assumption—disturbing, at least, to the historian. The first relates to the concept of harm; the second to the widely assumed progression

of medicine from worse to better over the course of the twentieth century. From our rather jaded perspective in the late 1990s, harm raises complex issues. A patient with appendicitis in the old days might die from inattention, inaccurate diagnosis, inappropriate treatment, botched or septic surgical procedures, or poor postoperative care. In that case, modern medicine is much more accessible and much better, thank goodness. But, as we all know, modern medicine can also bring pain and suffering in its pack of potential diagnoses and treatments, for cancer perhaps most evidently. Would the progressive optimists of 1910 see today's hospital as an untrammelled triumph of medical science and technology, or as an institution that has not met their all-embracing expectations? As a place of ambiguity, of aging, and of death, as well as of unimagined triumphs and cures? "Science" and "technology" are not the simple constructs they once seemed but are now wrapped in layers of meaning. Extending the area of comparison between 1910 and 1996, we can, however, congratulate ourselves that our predecessors' overenthusiasm for treatment, necessary or not, has happily been tempered.

Increased attention has been paid in the field of bioethics in the past few years as to what is appropriate care in given circumstances, including both terminal care and high-risk procedures. The encounter between doctor and patient has been redrawn as a discussion rather than a one-sided professional judgment, with shared responsibility for decision making. More recently, the rush to managed care has raised questions about the role of the insurer as participant in the encounter between doctor and patient. And given the prohibitive costs of medical care in the

1990s, the prospect of cuts in Medicare and Medicaid raises wider issues of harm by exclusion from the health care system. We are groping as a society for new standards of science, technology, and decency in medicine. In that quest, the uncertain climate is not unlike that faced by our much-less-learned predecessors before and after 1910.

The notion of progress is similarly muddled. Resistance to antibiotics is a case in point; those miracle drugs are losing the magic envisaged in their development. The sheer speed of some encounters also raises questions of how far we are indeed better off than our predecessors. For example, was the uncomplicated maternity patient in an American hospital in the 1930s, with a two- or three-week hospital stay, really worse off than her 1990s counterpart who is shot in and out of inpatient facilities? If the aim of medicine is to increase the sum of human health and happiness, which of the mothers was/is likely to be healthier and happier? At some fundamental level, we cannot say.

The history of medicine provides a window both into the past and, by analogy, into the present. The institutions that have had such a powerful impact on the quality of medical science and technology in the twentieth century, including medical schools and hospitals, are now undergoing downsizing, major organizational realignments, and critical appraisal. The idea of medical progress behind the remark attributed to Henderson encompasses the expectation of constant improvements in university medical centers as the centers of science and the dominance of the hospital as the technological center of modern medicine. In the 1990s those tenets are no longer given. It would be wrong to jump from those observations to the conclusion

that medicine must now go downhill. The next glorious phase, if such phase will exist, is to recast the questions so that they are in tune with the present rather than attuned to a no-longer-useful myth about the past based on unilateral progress.



## Notes

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# Surgery: It's Not a Random Therapy

Dale C. Smith

Surgery, or manually applied therapy, is as old as recorded medicine. Almost all practitioners, to one degree or another, have practiced surgery. By its very nature it is a peculiar therapeutic modality. Sometimes it is a traditional form of therapy where the practitioner soothes the patient's pain (reducing 'dis-ease'), but sometimes the practitioner inflicts pain by the production of trauma that has the goal of assisting the patient's ultimate recovery. This iatrogenic trauma, where the practitioner can easily make the patient worse (even to the point of risking the patient's life), has made and still makes surgical intervention different from other therapeutic options. (While medical therapy can damage the patient, I do not think that it is frequently perceived as doing so.) Therefore, in the effort to evaluate when surgical intervention might have benefited the patient, it is helpful to look at different actions associated with surgery and the different expectations concerning outcome or cure as they have changed over time.

Surgical therapy to treat disease is ancient and includes such major procedures as lithotomy and such minor procedures as venisection. The minor procedures vastly outnumbered the major procedures, but questions about benefits became more problematic. The most

common surgical therapies were those associated with trauma. The ancient hunter whose broken limb was set with splints was managed surgically; as is the child who gets a stitch in his finger, having cut it with his new knife. In fact, over the long course of history, it may be that surgical therapy for trauma was followed by healing more often than any other form of therapy because, with rare exceptions, it was applied only when clearly indicated by empirically verified experience.

Furthermore, in the management of trauma the surgeon most often works in concert with the "healing power of nature," for statistically most trauma is self-limited and not life threatening. In asking this question—When did surgery change from being largely ineffective or harmful to beneficial?—one assumes that there was a time when surgery was largely ineffective or harmful. I do not believe that, on a statistical basis, it ever was! Most surgical therapy was and is the traditional soothing of pain and restoration of the body to a pre-trauma condition. But surgery is also the liver transplant of Mickey Mantle followed closely by his death.

The leap from the ancient hunter with a simple fracture to a liver transplant patient in today's tertiary care hospital is significant, but whenever 'dis-eased' people

submit to the manual interventions of providers they do so with at least the hope of benefit. Benefiting is, and has been, a very vague concept; modern practitioners, patients, and health care administrators cannot agree on definitions of the benefits of surgery in today's health care system.<sup>1</sup> The arguments over the value of coronary artery bypass surgery and the indications for cataract surgery in the past decade come immediately to mind. To attempt to define a time in the past when surgery was likely to benefit a random patient with a nontraumatic illness is to invite disagreement and dispute, especially since most diseases do not now and never have had surgical therapies. Furthermore, not all practitioners perform, now or at any time in the past, all surgical procedures. The questions of randomness of disease and practitioner as well as benefits are thus particularly fragmented when applied to surgery.

There are at least three groupings of surgical cases that should be considered separately—minor trauma, major trauma, and surgical treatment of nontraumatic illness (iatrogenic trauma). Minor trauma would include, for example, blisters, lacerations that do not hemorrhage, simple fractures, easily reduced dislocations, and abrasions and partial thickness burns covering less than 10 percent of the body surface. Major trauma would include compound fractures, hemorrhage, major burns, and other conditions in which a bad outcome was frequently expected. Historically, surgical therapy was commonly ineffective in changing a bad outcome because few practitioners had experience with major trauma; moreover, they lacked experience because major trauma was comparatively rare before modern urbanization and industrializa-

tion. Since minor trauma—with its typically good, self-limited course—vastly outnumbered major trauma, surgery, as a whole, remained statistically effective and helpful, if the groups of patients are not considered separately.

The early modern folk saying “Guerir quelquefois, soulager souvent, consoler toujours” (To cure sometimes, to relieve often, and to comfort always) captured the expectations but not the hopes of patients.<sup>2</sup> All three are benefits of an encounter with a good surgeon (or any practitioner). It is tempting to consider only the first two outcomes as benefits, but the issue of comfort is perhaps the most important. There is significant personal and social value in definitive diagnosis and accurate prognosis. There are important emotional benefits for some patients and families in the assurance that the patient has received therapeutic interventions that provide a chance for recovery—even if that chance is not statistically different from expectant nursing care.

When applied to surgery as a therapeutic option, the comfort benefit probably comes when the patient and practitioner no longer consider surgery as the therapy of last resort, when the patient expects to survive the surgical encounter. For minor-trauma surgery, that has almost always been true.<sup>3</sup> For major-trauma patients, the comfort benefit probably came in the mid-nineteenth century; for the major iatrogenic trauma of treating “disease” through operation, the comfort benefit for most of the western world was probably reached early in the twentieth century, as culture became predominantly urban.

Certainly, until the second half of the nineteenth century, a patient did not submit to major surgery without persua-



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*An operation at Bellevue Hospital, New York, ca. 1880, demonstrating early antiseptic procedures in the United States*

*(Courtesy of the National Library of Medicine)*

sion. Probably the vast majority of surgery, however, was done by what we would now call general practitioners, or country surgeons, the apprentice-trained practitioners who saw all patients. The surgery done by those providers included bleeding, bandaging, perhaps some clyster use, and maybe an occasional incision and drainage operation for an abscess that had "ripened." In all of those cases, the probability is that the encounter with the random practitioner by the random patient almost never resulted in "cure," but sometimes the clyster, bandaging, or an I & D operation provided considerable relief. (To the best of my knowledge the small community of scholars interested in the history of pain has not yet addressed the history of palliation, but it is hoped that someone will do so, for the need is great.) Since indications are that the early modern antiphlogistic therapies were seldom "heroic," the patient was comforted by the sense of having had something done.<sup>4</sup>

I know of little literature on the social definition of "cure" and how it relates to the understanding of disease. For example, few patients would accept five-year survival (or even ten-year survival) as a "cure" of cancer, yet those definitions were and are used by surgical oncologists in dealing with neoplastic diseases, the natural history of which is poorly understood. Many patients, having survived a diagnosis of cancer for five years, will as a result refer to themselves as "cured." I have a friend who developed a gastric ulcer that was "cured" by surgical removal of the ulcer tissue in 1978. He, his family, and his surgeon agreed that the ulcer was "cured." A few years later his ulcer would have been controlled by the use of cimetidine and he probably would not have been operated on

at all. Today he would probably be "cured" with a regimen of antibiotics to combat *Helicobacter pylori*. It would be rather whiggish to argue that he was not cured in 1978 because his ulcer has not recurred—even if the best scientific data suggests that it still might do so. He still has *H. pylori* infecting his stomach, but he is not convinced that he is 'dis-eased' enough to take the triple therapy designed to eliminate the bacteria. My son has been "cured" of strep throat an average of three times each winter for several years. The bacteria are probably harbored in his tonsils, and he has recurrences from the same colony of bacteria—but each event is considered a new illness. We would happily accept that five years without recurrence is a cure, but that is not the standard applied to strep throat. Forty years ago he would have been "cured" by tonsillectomy. Obviously the construction of or natural history of the disease in question is crucial to any understanding of cure.

What can be said about surgical therapy in the cure and relief of disease? First it must be acknowledged that cure is a moving target, subject to redefinition by the medical profession and negotiation with patients.<sup>5</sup>

Cure, for the late-twentieth-century American, has been shaped by the phenomenal success of antibiotic therapy in interrupting the natural course of many acute infectious diseases caused by bacteria. The natural course of those diseases was known; when "cured" with antibiotics, the disease pattern was broken and the patient was no longer ill. The statement that "the natural course . . . was known" postulates acceptance of certain concepts of disease—that exposure to (or infection with) certain microbiological flora will be followed by certain signs and

symptoms of 'dis-ease' as surely as night follows day; and that the patient has been "cured" when the expected sequence begins but does not continue (i.e., the activities of the healer prevented the expected consequences)—*post hoc ergo propter hoc*.

I do not debate the reality of particular concepts of disease. The etiological/immunological understanding was and is very useful in both managing patients and designing public health programs. The actual percentage of infected individuals in which the expected sequelae actually follow is, at one level, unimportant; the "fact" that they are expected is sufficient to define outcomes. Much of the largely unstudied history of infectious diseases in the twentieth century is the effort to gain greater precision in understanding resistance, virulence, and related concepts as well as the development of statistical trials to evaluate clinical activities, but century-old understandings still seem significant in the popular mind. The difficulties of chronic infectious diseases in the twentieth century elaborate other problems with that concept of disease. Tuberculosis is the classic case, but syphilis and understanding the Tuskegee Study as well as modern problems with HIV and AIDS illustrate the problem as well. Exactly what is infection, how it really relates to disease, and what that means to cure remains an open question in some areas.

There have been many acute surgical diseases cured in the same way—the interruption of the natural course of disease. In fact, such surgical cures predate antibiotics and came when only malaria was subject to such "cure." Inflammation of the uterine appendages, for example, was redefined from a single attack that resolved under

medical management to chronic inflammation of the appendages, a progressive disease in which repeated attacks would continue until one finally killed the patient.<sup>6</sup> Thus the natural course of surgical disease is to worsen inextricably over time; surgery interrupts that natural course, curing the patient. Appendicitis was the classic model for general surgery; other acute abdominal emergencies were built on that model. The surgical therapy is frequently removal of the offending tissue—appendectomy in the case of appendicitis. But the number of organs subject to removal without serious detriment to the patient is quite limited. Cardiectomy was never considered for endocarditis. Amputation of a limb has always been recognized as a peculiar kind of "cure" for osteomyelitis—it interrupts the natural course of the disease, but the cost is high. Joseph Bloodgood's classic analysis. "To cure an infection by amputation cannot be looked upon as a great triumph," is an easily accepted view.<sup>7</sup>

Cure is easiest to define if the risk/benefit ratio is low: the therapy involves low postoperative debility and little mortality risk, and the natural course of the disease has a significant probability of death or disability. As the risk/benefit ratio rises, questions about the value of the therapy arise. For trauma, surgical cure has almost always been restoration of *status quo ante*. As that result became more common after World War II, the definition spread, especially with the emergence of bypass and transplant surgery. A similar, repair-oriented definition was normative in orthopedic and other congenital repair surgical procedures, but such procedures have always been a minor part of the total surgical work. In recent years, monetary costs have begun to be added to risks in



evaluating surgical therapies, and debates about “disability” and its converse—the quality of life—have become increasingly important.

In the early modern era, the risks associated with major trauma—almost always a vascular or orthopedic trauma, hemorrhage, or fracture—justified major surgical intervention in the effort to limit the damage. By the eighteenth century, more operations were suggested; but even then, the elective procedures (e.g., lithotomy and cataract removal) had straightforward indications. If catheterization had become ineffective and/or the pain essentially unmanageable, then lithotomy was called for. If the patient was in essence blind, then cataract removal made sense. Although cataract surgery seems to have always been a specialized procedure in the western tradition, the Indian experiences suggest that it was not necessarily the only way to organize care.<sup>8</sup>

New operations, like tying peripheral artery aneurysms pioneered by Pierre Desault and John Hunter at the end of the eighteenth century, had clear indication—aneurysms when palpable and pulsating were fairly easy to diagnose by the direct physical examinations of the day. Surgeons who would treat an aneurysm were knowledgeable in the anatomy necessary to tie off the artery. It was believed by the surgeons who advocated aneurysm surgery that the mortality from rupture, with or without emergency amputation, was greater than the admittedly high mortality from the new vascular surgery. In many ways that approach to defining surgical risks would grow in the nineteenth century—the natural history of the disease process was extended in time to include more pathological findings, frequently including increased probability of death

from the newly defined disease process. The operative mortality, while high, might still be lower than the mortality from the untreated disease.

By the second generation of the nineteenth century, increases in anatomical research and teaching led to expanded hope on the part of some surgeons.<sup>9</sup> The surgeons performing major operations and advocating more surgery were a small, if historically important, minority of practitioners. The mid-nineteenth-century general practitioner had very limited surgical practice and equally limited capabilities.

In the United States the experience of the Civil War amply documented the anatomical ignorance and major trauma inexperience of vast numbers of practitioners. After the war the experience was used to urge the reform of medical education, particularly the licensure of practitioners and the passage of anatomy acts in several states. The problem of battlefield (and naval) trauma, particularly long-bone fracture, was a perpetual issue in the surgical literature. The frequency of compound fracture (and so the need for amputation) was comparatively rare in civilian practice before industrialization and the mechanization of agriculture. The continuing education of military surgeons in the small royal armies of the early modern period resulted in improved techniques and a high order of skill. The French need for surgeons in 1794, for example, was a new experience in military medicine.<sup>10</sup> The British mobilization for Crimea and the mass mobilization of the American Civil War revealed considerable diversity in the surgical capability of random practitioners. The Civil War experience had a profound impact, in part, because it was concentrated; the cases were





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*Neurosurgeon Harvey Cushing (identified in second row) with surgical staff and students at Harvard, ca. 1922. One of those students was Wilber Armstrong Jr. of Springfield, Illinois. Armstrong (identified in fourth row) served as a house officer at Boston City Hospital as well as a surgical assistant at Barnes Hospital in St. Louis; after graduation from Harvard in 1923, he became house officer at the Fifth Avenue Hospital, New York City. This photograph is among his papers at the Pearson Museum of Southern Illinois University School of Medicine.*

of sufficient number over a sufficiently short time frame that both the profession at large and the general public had knowledge of the results.<sup>11</sup> Historians, following late-nineteenth- and early-twentieth-century surgical reformers, frequently focus on the high postoperative mortality, forgetting that the vast majority of the wounded survived. While in Europe the process was a little slower, and civilian standards had probably never been relaxed to the degree that they had been in the United States, it seems likely that the steady progress of industry, with an absence of occupational safety standards, led to increasing experience with major trauma and demonstrated similar inadequacies on the part of some percentage of practitioners. The difficulties of urban trauma, particularly compound fracture, provided, in part at least, the motivation behind the experimental work of Joseph Lister in Glasgow, which led to his classic 1867 papers on antiseptic technique.

For almost one hundred years, a standard story in the history of medicine has been the slow adoption of Listerian antiseptics by surgeons around the world and the resulting revolution in patient care. Historians are slowly coming to realize that the story is perhaps, in at least its fine detail, one that we do not fully appreciate or understand.<sup>12</sup> What seems true in retrospect, however, is that there was phenomenal change in the utilization of surgical therapy during the 1880s—by one count, more than one hundred procedures were introduced.<sup>13</sup> Some of them were quite transient, but others were profound contributions. One has only to recall Reginald Heber Fitz's classic 1886 paper on appendicitis to realize the importance that surgery was coming to have as a therapeutic option. As surgical care

became less frequently complicated by postoperative infections, leading surgeons began to advocate greater reliance on surgical therapy. There were significant biases to overcome in achieving a new surgical cure—most important from the point of view of the surgeons was the slowness of referral so that patients were frequently moribund prior to the referral. Until patients and referring physicians were “comfortable” with early referral the problem would not change.

Late-nineteenth-century surgeons pointed to the recurrence of appendicitis in patients who survived an initial attack as indicative of constant risk of recurrent disease that might develop into peritonitis; they argued that all appendicitis patients should be operated on to remove, once and for all, the possibility of death from appendicitis. As the specter of death associated with appendicitis increased and the possibility of surviving surgery to remove the appendix also increased, the “cure” became more acceptable. The statistical probability of any given patient dying from any given attack of appendicitis was probably quite low (certainly less than 25 percent), but that was seen as too narrow a focus.<sup>14</sup>

The same definition of cure—early removal of pathological tissue—was applied in the late nineteenth century to neoplastic disease, giving rise to “radical” operations for various kinds of cancer and the campaign for early diagnosis. Very quickly it was realized that many of the cancers were not cured, even if symptoms were palliated for a time by surgical therapy. The classic example of the success of palliation is probably the early work on decompression in brain tumor conducted by Harvey Cushing between 1904 and 1920. Cushing did not cure many patients of

their cancers, but he did relieve many—at least for a time—of headache and blindness, symptoms that were severely debilitating. As the century progressed, more and more such operations were done by Cushing and his trainees.<sup>15</sup> The benefits were high, and the risks went down steadily.

In summary, the most important factor in both examples (and literally dozens more) was the decrease in risks associated with operating. The new major surgery, like the old, required first of all a belief that surgical therapy was appropriate therapy. Second, that there were practitioners capable of providing the therapy; and third, that the public and the profession at large trusted those practitioners to provide the therapy. In retrospect, it is fairly easy to document that there were therapies that were seen as useful. (In retrospect, we do not agree that all of them were equally useful, however. The normal ovariectomy of Robert Battey as a treatment for neurasthenia is not, after a century, in the same category as the appendectomy. Yet both therapies flourished at least for a time in the hands of some surgical practitioners. Neither therapy could have flourished until the new surgery convinced people that, in some hands at least, such therapy was safe.)

It is more difficult to document the prevalence and distribution of practitioners capable of providing the therapy. By the turn of the century the best surgeons had reduced mortality associated with many operations to less than 10 percent. While not all practitioners were that good, there remained few practitioners like B. R. Riley of Coyville, Kansas, who in 1883 urged general practitioners to do more abdominal surgery because the “public does not expect good results from

abdominal surgery.”<sup>16</sup>

European medical schools taught the basic anatomical facts earlier and more systematically than did American medical schools. After the Civil War, however, many states passed laws to regulate anatomical instruction. But anatomical knowledge in and of itself was certainly not sufficient and the development of surgical experience was not uniformly available in any country in the late nineteenth century. By 1900, there were practitioners in all western countries capable of providing the new therapy, but their distribution by no means made them available to the random patient. For example, when the American Surgical Association (ASA) was organized in 1880, the problem was identifying the appropriate members; by 1900, however, membership in the ASA was a mark of academic achievement and its members represented a minority of surgical practitioners. There were obvious differences in the vigor with which different surgical communities encouraged surgical therapy. The American surgical community was, perhaps, the most vigorous by the twentieth century. Furthermore, many general practitioners were tempted to provide new therapies as the literature described surgery as the appropriate care and patients began to expect operations for certain diseases. As new communities began to provide more involved surgical therapy, members of the traditional, academic surgical community expressed reservations.

Nicholas Senn, for example, in 1905 commented: “It is very apparent everywhere that the American doctors have a special predilection for the mechanical part of the healing art. It is not saying too much when I make the statement that this tendency has grown beyond the limits of

normal requirement. . . . American medicine is becoming more and more surgical, and this change has not always been for the benefit of patients."<sup>17</sup> Such statements strongly suggest that contemporary surgeons recognized a problem of inadequately trained practitioners being tempted to apply surgery in a heroic way. There were problems of medical training, particularly misdiagnosis (a typhoid patient treated by appendectomy especially offended Senn) and problems of surgical skill—including incisional hernia and postoperative infection. As surgery changed, training also had to change; but how training should change was unclear.

Turn-of-the-century surgical literature was full of questions about the appropriate training of "surgeons." How much surgery should a general practitioner know? It was a time of considerable confusion in medical education. While American medicine, on average, probably had the furthest distance to travel, it was by no means uniquely an American problem. The debates in Great Britain in the late-Victorian period over the safe general practitioner and what that might or might not mean to the traditional faculties fill volumes.<sup>18</sup>

The intense competition among insurance companies in post-health insurance Germany strongly suggest diversification in both the number of practitioners and the variety of therapies in the late-nineteenth century.<sup>19</sup> As the twentieth century progressed, European countries, both because of the introduction of increasingly broad-based systems of health care and a more strongly centralized control of practice, found it easier to regulate the training of surgical specialists. Independent infirmaries in Germany and England, however, existing outside the

rudimentary health care system and catering to those who had the ability to pay, suggest that there was more openness to the system than we sometimes remember. As educational campaigns aimed at the general public increased in all countries, the public began to expect good surgeons. The growth of government-sponsored insurance schemes throughout Europe in the late-nineteenth and early-twentieth century strongly suggests that society increasingly saw benefits to be gained by surgical hospitals. The need to consider medical care as a public trust suggests a public valuing that previously had not been widely seen.

It was, however, in the United States that the least regulated market existed. The veritable explosion of small urban or private hospitals in the early-twentieth century, the complete lack of national standards, and the nature of licensure in America meant that virtually any practitioner had some surgical patients. The limits on a practitioner were, to a great degree, those of the marketplace—would patients submit to the therapy recommended? Since patients tended to follow doctors' advice and since there was no way to measure surgical competence (other than by general reputation in the community), it is not surprising that many general practitioners undertook surgical operations for which they were not fully prepared.

There were two approaches to surgical training in the early-twentieth century, and the direction depended on the assumed answer to the following questions—Whom were you training, and for what?

One community of surgical professors and leaders, epitomized by William Halsted in his 1904 classic "The Training of the Surgeon," was interested in what he

called “a higher type of surgeon.” Halsted was clearly aiming at the creation of academic practitioners. Men who were omniscient in the known surgical procedures and who were sufficiently trained in the basic sciences and surgical research to be able to push back the frontiers of surgical knowledge. Very few such trainees were needed to staff the available academic positions, and very few medical centers had the capacity to train them in the first and second decades of the twentieth century. There has never been any doubt that any surgeon had to have a first patient for any given operation (nor has being a surgeon’s first patient ever been a privilege to be coveted). The academic practitioners represented by the Halsted training tradition believed the young surgeon’s first operation should occur in the most supervised setting possible. If that standard was to be applied to a variety of surgical procedures—and, perhaps even more important, if the surgeon was to do enough common procedures to recognize abnormality when it was encountered (either diagnostically or therapeutically)—then the training of surgeons was a long and involved process of progressive responsibility.

The other community was concerned primarily with training the “random” general practitioner. There the emphasis was on surgical dresserships, cadaver surgery in medical school, and the surgical experience of the internship. The traditional method of training a surgeon was to apprentice a general practitioner in a surgical practice so that over time the practitioner acquired more and more surgical responsibility. Selection for such training depended on many factors other than ability, social connection probably being the most important. When there was

little surgical care to provide beyond ordinary general practice, however, there was little concern with the limits on opportunity. The old surgeons were confined to cities and attached to urban hospitals, their practices among paying patients were quite limited. The new (perhaps “random”) surgeon grew out of the basic training of the general practitioner because of interest, need, and opportunity. The need and opportunity were created by the advances in surgical care pioneered by the old, academic surgeons.

The process of training the new surgeon was based on the old system but was variable and can only be described as a *nonsystem*. Sometimes there was an informal apprenticeship, and usually (but not always) that apprenticeship was across generational lines. Frequently the aspiring surgeon would visit surgical clinics and perhaps take courses in a medical center. The value of clinics and courses was exceedingly variable. Sometimes practitioners became surgeons because of seeming necessity, a patient needed an operation and no one else was available. Both necessity and the informal apprenticeship demonstrated surgical management in proportion to frequency of occurrence of the diagnosis in the population. Clinics in urban centers demonstrated the common surgical events in the clinical setting, although the lectures were frequently on the less common problems. The nonsystem of building surgical skill on the general practice base probably prepared practitioners to take care of common problems reasonably well, although the practitioner quite literally practiced on his early patients. It thus led to the problems that Senn and other academic surgeons repeatedly cited in their papers urging “better” training under the





*George Crile's basic research to control shock was undertaken prior to World War I, although the war demonstrated the value of transfusion to a much larger surgical audience.*

*(Courtesy of the National Library of Medicine)*

control of academic surgeons. The nonsystem could not and did not prepare the surgeon for future changes in the standard of care or to recognize the uncommon problems, either diagnostic or therapeutic.

The reform of American medical educa-

tion led to changes in the general surgical capability of graduate physicians in the early twentieth century. How widespread those changes were at any given time is very difficult to determine in retrospect. Beginning in the second decade of the century, the requirement for internships further expanded the general practitioner's surgical capability. The steady growth of internships (it must be remembered that internship was not required in all states until the 1970s) as well as the expansion of anatomical knowledge and surgical dresserships led to steady improvement. States with progressive state medical schools, particularly in the upper Midwest, probably had a wider distribution of capable practitioners earlier than poorer states, including those of the Old South.

One benchmark of that improvement is the experience with volunteer general practitioners in the U.S. Army Medical Department in the First World War. Of those who volunteered as general medical officers the Army found that about two thirds were qualified to practice general medicine independently. That is, their physical diagnostic skills, knowledge of general pathology, and ability to recommend appropriate therapy seemed to be well within the acceptable parameters of army medicine. Only about one third of the physicians examined were, however, found to be qualified to practice surgery independently.<sup>20</sup>

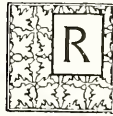
And yet the one third suggests significant success in the reform of medical education by the time of the examinations of 1917–1918. It is probable that the volunteers represented the younger cohort of the profession. While older men did volunteer, they tended to have more established practices, more familial responsibilities, and other encum-



branches that inhibited them from volunteering. If, as the army sample suggests, a third of the younger cohort of physicians were capable of independent surgical practice, they were able to provide surgical care for the more common surgical diseases. Such proportions suggest an increasingly broad distribution of practitioners capable of providing surgery. For surgical therapy to provide benefits more often than not, most patients needing surgery (and few patients who did not) should be referred to capable practitioners. There is no reason to believe that all practitioners recognized the limits of their own practice abilities and referred their patients. Yet in the first quarter of the twentieth century, some of the ethical flaws of surgical practice do suggest a concern for improved results. Ghost surgery (i.e., surgery by proxy without the patient's knowledge) was, in fact, a recognition that the patient should have been referred to a better-trained surgeon. Fee splitting and other kickbacks could exist only when the range of surgical consultants was sufficient that choice was possible on the part of the referring physician. Both practices were considered unfair to patients who did not know of them and, according to established surgeons, both inhibited the development of full-time specialization.

The actual experience of World War I may have also contributed to the public's and the profession's increasing faith in the power of the knife. There was, in retrospect, measurable improvement in surgical safety as the value of hemostasis and the understanding of shock emerged from the trauma wards of the war zone.<sup>21</sup> The ability of reconstructive surgeons to repair the ravages of war in the immediate postwar period suggested to many a new power in surgical therapy. The journal

## FELLOWSHIP PLEDGE



RECOGNIZING that the American College of Surgeons seeks to develop, exemplify, and enforce the highest traditions of our calling, I hereby pledge myself, as a condition of Fellowship in the College, to live in strict accordance with all its principles, declarations, and regulations. ✱ ✱ In particular, I pledge myself to pursue the practice of surgery with thorough self-restraint and to place the welfare of my patients above all else; to advance constantly in knowledge by the study of surgical literature, the instruction of eminent teachers, interchange of opinion among associates, and attendance on the important societies and clinics; to regard scrupulously the interests of my professional brothers and seek their counsel when in doubt of my own judgment; to render willing help to my colleagues and to give freely my services to the needy. ✱ ✱ Moreover, I pledge myself, so far as I am able, to avoid the sins of selfishness; to shun unwarranted publicity, dishonest money-seeking, and commercialism as disgraceful to our profession; to refuse utterly all money trades with consultants, practitioners or others; to teach the patient his financial duty to the physician and to expect the practitioner to obtain his compensation directly from the patient; to make my fees commensurate with the service rendered and with the patient's rights; and to avoid discrediting my associates by taking unwarranted compensation. ✱ ✱ Finally, I pledge myself to co-operate in advancing and extending, by every lawful means within my power, the influence of the American College of Surgeons.

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*Fellowship pledge of the American College of Surgeons as printed in the 1924 Yearbook*

literature of the day strongly suggests steadily decreasing risks associated with surgical operations as more and more surgeons gained experience and as patients were referred for surgical therapy



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*The major operating room of the City Hospital in Barre, Vermont, which was described as an ideal structure for a small (thirty-two bed) facility in 1918. The illustration is from architect Edward F. Stevens's *The American Hospital of the Twentieth Century: A Treatise on the Development of Medical Institutions* (New York: Architectural Record Publishing Company, 1918).*

earlier in the course of disease. Lower risks with greater expectation of benefit brought surgery to the attention of wider and wider audiences.

The years immediately after the war saw common surgical therapies referred to in almost all general medical textbooks. The vast increase in surgical management of diseases like cholecystitis and peptic ulcer, the proposed surgical management of focal infection, chronic appendicitis, and enteroptosis all suggest a growing faith in surgical cure during the 1920s. Surgery was applied to patients with diagnoses like focal infections or chronic appendicitis in the hope of helping relieve or cure the rather vague symptoms associated with the diagnosis. Since many of those patients did not complain further (at least to the surgeon), the surgeon frequently assumed a cure and reported it as such in the medical literature of the day. While such definitions of cure would be challenged by others within a few years, it is tempting to discount such retrospective analyses since significant numbers of patients were treated surgically and there is at least some evidence that contemporaries thought that they benefited from the encounter. Certainly by modern standards, those patients were *not* cured; they may have not even been relieved, but the fact that they were operated on suggests a faith in surgical therapy that may have comforted. How many such operations were done, other than at academic centers, is almost impossible to determine, but one suspects such ventures were comparatively rare since the symptoms that led to such diagnoses are seldom sufficiently debilitating to risk surgical “cure.” The published literature describes cases in an

anecdotal way that makes statistical analysis of either diagnosis or therapy difficult. Surgical therapy had apparently become so safe and so seemingly powerful that it was being used, at least in part, to shape pathological understandings. It thus provided its own justifications.

More and more practitioners were limiting their practices in the first quarter of the twentieth century and increasing numbers chose not to do certain operations. The limits on such practitioners were self-determined but were shaped by experience (both good and bad). Equally important, more and more practitioners who confined their attention to surgery (or wished eventually to limit their practices to surgery) were known to their colleagues as surgeons.

The recognition of full-time surgeons through fellowships in the American College of Surgeons (ACS), founded in 1913, provided increased opportunity for practitioners who chose not to perform complex surgical therapies to refer a patient to one who did. The ACS insisted that its fellows forego ghost surgery and fee splitting as a condition of membership. (While fellowship in the American College of Surgeons was increasingly important for the progress of surgical therapy, the majority of practitioners applying surgical therapy probably did not hold fellowship status until after the Second World War.)<sup>22</sup>

The erection, in many American cities, of “Physicians’ and Surgeons’ Buildings,” the 1912 revision of the American Medical Association code of ethics statements on consultation and referral, and limited data surveying practitioners on “surgical” diseases, all suggest growing use of specialty referral in at least some surgical



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*Typical of early group practice arrangements was the Marshfield Clinic, established in 1916 in Marshfield, Minnesota. This 1926 photograph shows three Clinic physicians posing in front of their newly-built offices.*

*(Courtesy of the Marshfield Clinic)*



cases. There was also growth of group practice arrangements, usually built around surgical skills.<sup>23</sup>

The growth of hospital insurance schemes suggests a growing concern with the ability to pay for surgical therapy, even when it was provided by part-time surgical practitioners. The development of local hospitals and the acknowledgment of “surgeons” among the local community of practitioners went forward at various rates in different-sized communities and in different areas; much depended on the rate of transportation to other sites for surgical care.<sup>24</sup> The steady growth in the number of internship positions in American hospitals and the fact that most medical school graduates of 1920 wanted surgical experiences as interns adds further to the possibility of widely available surgical therapy as the third decade progressed.<sup>25</sup>

What, then, can we say about random patients, random physicians, and diseases chosen at random? First, at any given time surgery is applied when surgical therapy is believed to be beneficial. Surgery to one degree or another is applied by almost all practitioners. The simplest surgery (i.e., the management of simple trauma, the incision and drainage operation, bandaging, etc.) probably has been managed to the benefit of patients most of the time by most practitioners.

From the eighteenth century there has been a growing list of diseases to which surgical therapy provided at least one alternative mode of treatment. Some of those have always been considered beyond the purview of the general practitioner, while others have tempted the general practitioner. Referral may not always have been acknowledged (as in the case of ghost surgery), but the referral was nonetheless

real. The broad expansion of practitioners capable of doing the more common referral operations was a result of the recognition that there was a need for a community of people trained beyond the general practitioner but not necessarily to the degree of the academic surgeon. That community grew steadily in every major country. It was probably less regulated and larger in the United States than in Europe because of differences in the medical marketplace. The community was recognized first by the profession and ultimately by patients because of hospital privileging and the development of public credentials such as fellowship in the American College of Surgeons. The impact of certifications probably was not complete until after the mid-twentieth century, but completeness was not necessary for patients to benefit (more often than not) by referral to a surgeon.

Surgical therapy became increasingly dominant in the professional mind in the late-nineteenth century. Thereafter, for a period of a little more than a half century, until referral became a common part of the practice of medicine, a random choice of practitioner could have been detrimental to the patient.

While not subject to rigorous statistical proof, it seems possible that many of the horror stories of surgical mistakes found in the literature of the early-twentieth century may be the early surgical experiences of practitioners. All we have left in the record is a numerator (patients with problems); the size of the denominator (total number of patients) is simply unknown.

Those whose personal experience improved with further “practice” moved to the benefit side of the issue, but those cases do not leave a record in the published literature. If most of a practitioner’s surgery



turned out poorly, neither colleagues nor patients would continue to have the faith necessary for him to continue in practice. Therefore, even those cases where the patient was harmed should not cause us to overlook the possibility of benefit for larger numbers of future patients. Since the central question is statistical, such future benefits may outweigh the problem recorded.

The period of fifty-odd years was a time of great expansion in the possibilities, real and imagined, of surgical therapy and dramatic advances in surgical teaching. But our retrospective skepticism about some of the ideas that found their way into print must not bias our understanding of the common problems. The most common surgical conditions were also most commonly taught and demonstrated so that the complaints of academics about a lack of fully trained surgeons might be considered as much a part of a debate about the shape of the future of surgical practice as a commentary on current practice.

I suspect that by 1930 a random patient with a random disease believed to be susceptible to surgical management consulting a doctor chosen at random stood a better than fifty-fifty chance of being managed by a competent surgical practitioner, but that random doctor frequently had to refer the patient to achieve that situation.<sup>26</sup>

Such operations cured sometimes, relieved often, and comforted at least almost always because of significant decreases in the risk associated with surgical therapy in competent hands.



## Notes

1. John P. Bunker, Benjamin A. Barnes, and Frederick Mosteller, eds., *Costs, Risks, and Benefits of Surgery* (New York: Oxford University Press, 1977).
2. Maurice B. Strauss, ed., *Familiar Medical Quotations* (Boston: Little, Brown, and Co., 1968), 410.
3. Most trauma was and is minor, although the proportion is not as clear when only the trauma coming under the care of the medical practitioner is considered. I suspect that those like Lawrence J. Henderson who talk about a point in time when medical practice benefited a diseased patient were not considering trauma as a disease condition.
4. On the importance of shared views in the management of patients, see Charles Rosenberg, "The Therapeutic Revolution," in Rosenberg and Morris J. Vogel, *The Therapeutic Revolution: Essays in the Social History of American Medicine* (Philadelphia: University of Pennsylvania Press, 1979). On the benefit of bloodletting, it is important to recall both Pierre Louis's belief that early bleeding was valuable in pneumonia; Pierre Louis, *Essay on Bloodletting* (Boston: Hilliard, Gray & Company, 1836) and Peter Brain's argument that anemia is therapeutic for some patients, particularly those with endemic malaria. See Brain, *Galen on Bloodletting: A Study of the Origins, Development, and Validity of His Opinions, with a Translation of the Three Works* (New York: Cambridge University Press, 1986).
5. While there is a growing literature on the social construction of illness, see, for example, Charles Rosenberg and Janet Golden, eds., *Framing Disease: Studies in Cultural History* (New Brunswick, N.J.: Rutgers University Press, 1992).
6. Lawson Tait, *General Summary of Conclusions from 1,000 Cases of Abdominal Section* (Birmingham, Eng.: Birbeck, 1884), rpt. in L. Tait, *Ectopic Pregnancy and Their Other Works* (New York: Gryphon, 1992).
7. J. Bloodgood, "Gas-bacillus Infections; Surgical Bacteriology," *Surgery, Gynecology, & Obstetrics* 23 (1916): 182-84.
8. Robert H. Elliot, *The Indian Operation of Couching for Cataract* (New York: Paul B. Hoeber, 1919).
9. The comment of the Philadelphia surgeon

William Gibson in his standard textbook, *Institutes and Practice of Surgery: Being the Outlines of a Course of Lectures*, by William Gibson, 2d ed., 2 vols. (Philadelphia: Carey, Lea & Carey, 1827), 1:23—"severe pain should never be an obstacle" to surgery—strongly suggests a spirit of heroic therapeutics more in keeping with the massive bleedings and purgings of Benjamin Rush than the more conservative surgical approaches of the early modern practitioner. That tendency was if anything exacerbated by the introduction of ether and chloroform in the fifth decade of the nineteenth century. While many of the "first's" of modern surgery (the first appendectomy, the first hysterectomy, etc.) were recorded in the late eighteenth or early nineteenth century, such major operations were exceedingly unusual prior to anesthesia. As early as 1904, William Stuart Halsted documented the phenomenal increase in operations performed in urban hospitals in selected American cities following the introduction of anesthesia. Halsted, "The Training of the Surgeon," *Johns Hopkins Hospital Bulletin* 15 (1904): 267-75. More recently Martin Pernick has documented that by midcentury there was a growing tendency to operate in doubtful cases, whereas the doubtful cases had been managed conservatively (i.e., without operation) prior to the introduction of anesthesia. See Pernick, *A Calculus of Suffering: Pain, Professionalism, and Anesthesia in Nineteenth-Century America* (New York: Columbia University Press, 1985). One area where the new painlessness was held to be particularly significant was in the earlier diagnosis of neoplastic disease and a hope for earlier treatment. Patients remained skeptical as long as operative mortality remained high.

10. David Vess, *Medical Revolution in France* (Gainesville: University Presses of Florida, 1975).

11. Courtney Hall, "The Rise of Professional Surgery in the United States," *Bulletin of the History of Medicine* 26 (1952): 231-62.

12. Joseph Lister was a Glasgow Infirmary trauma surgeon interested in the processes associated with inflammation. He became aware of Pasteur's "germ theory"—that microbes in the air caused fermentations in the human body that were the pathological processes associated with disease. Lister then developed a system of wound management designed to destroy the germs in wounds and exclude new germs from wounds—antiseptics. Because many surgeons were not

prepared to accept the germ theory, they were lax in applying antiseptics and did not find it noticeably better than other systems of wound care. German academic surgeons, with greater appreciation of the basic sciences and to some extent made desperate by the experience of the Franco-Prussian War, tried antiseptics and in the early 1870s found it an effective means of making surgery safer. From German clinics, antiseptic surgery spread around the world and—as medical microbiology developed in Koch's lab in Berlin—was transformed into asepsis. This story misses the confusion of the constantly changing "germ theory," the dynamics of change in academic clinics, the mixed motivations and different experiences of different surgical groups, and most of the other messy details of life. As David Hamilton pointed out over a decade ago, it even fails to take into account the "fact" that Lister's theory was not really very germicidal. See Hamilton, "The Nineteenth-Century Surgical Revolution—Antisepsis or Better Nutrition," *Bulletin of the History of Medicine* 56 (1982): 30-40; and for a modern review of Lister research, see Christopher Lawrence, ed., *Medical Theory, Surgical Practice* (London: Routledge, 1992).

13. M. J. Fogelman and E. Reinmuller, "1880-1890: A Creative Decade in World Surgery," *American Journal of Surgery* 115 (1968): 812-24.

14. Dale C. Smith, "Appendicitis, Appendectomy, and the Surgeon," *Bulletin of the History of Medicine* 70 (1996): 414-41; Smith, "A Historical Overview of the Recognition of Appendicitis," *New York State Medical Journal* 86 (1986): 571-83, 639-47.

15. Samuel H. Greenblatt and Dale C. Smith, "The Emergence of Cushing's Leadership: 1900-1920," Chapter Eleven in *A History of Neurosurgery in Its Scientific and Cultural Contexts*, ed. Samuel H. Greenblatt, T. Forcht Dag, and Mel H. Epstein (Park Ridge, Ill.: American Association of Neurological Surgeons, in press).

16. Donald Konold, *A History of American Medical Ethics, 1847-1912* (Madison: State Historical Society of Wisconsin, 1962), 50.

17. N. Senn, "The Training of the Modern Surgeon," *Monthly Cyclopaedia of Practical Medicine and Universal Medical Journal* 8 (1905): 2-4.

18. Charles Newman, *The Evolution of Medical Education in the Nineteenth Century* (New York: Oxford, 1957).

19. Kurt Finkenrath, *Die Organisation der Deutschen Aerztegesellschaft* (Berlin: Fischers medizinisch Buchhändler, 1928).

20. Edward L. Munson, "The Needs of Medical Education Revealed by the War," *American Medical Association Bulletin* 13 (1919): 204-13.

21. The basic research to control shock was undertaken prior to the war, see Peter English, *Shock, Physiological Surgery and George Washington Crile: Medical Innovation in the Progressive Era* (Westport, Conn.: Greenwood Press, 1980). Karl Landsteiner had differentiated the A, B, O blood group system in 1901; by the end of the first decade of the century, transfusion and intra-operative blood pressure measurements were part of the practice of such surgical researchers as George Crile and Harvey Cushing. The epidemic of trauma that resulted from the trench warfare of World War I demonstrated the value of transfusion to a much larger surgical audience.

22. See Loyal Davis, *Fellowship of Surgeons: A History of the American College of Surgeons* (Springfield, Ill.: Charles C Thomas, 1960).

23. Dale Smith, "Modern Surgery and the Development of Group Practice in the Midwest," *Caduceus: A Museum Journal for the Health Sciences* 2 (Autumn 1986): 1-39.

24. On hospital insurance schemes, see Odin Anderson, *The Uneasy Equilibrium: Private and Public Financing of Health Services in the United States, 1875-1965* (New Haven, Conn.: College & University Press, 1968), and J. T. Richardson, *The Origin and Development of Group Hospitalization in the United States, 1890-1940* (Columbia: University of Missouri Press, 1945). On hospitals and the role of "surgeons" in their organization and development, see Charles Rosenberg, *The Care of Strangers: The Rise of America's Hospital System* (New York: Basic Books, 1987) and especially Edward C. Atwater, "Grandes Dames, Surgeons, and Hospitals," *Journal of the History of Medicine* 45 (1990): 414-51.

25. See Rosemary Stevens, *American Medicine and the Public Interest* (New Haven, Conn.: Yale University Press, 1971), and Dale C. Smith, "The Evolution of Modern Surgery: A Brief Overview," in *History of Neurosurgery in Its Scientific and Cultural Contexts*.

26. One of the most interesting questions in twentieth-century medicine has to do with what doctors and patients believed about therapy at any given time. In 1930, for example, gastric ulcer was

seen as a surgical problem in many if not most American textbooks; but most practitioners, I think, felt that gastric ulcer could be safely managed with antacids and dietary therapy and only referred complications to a surgeon.

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# When Did Medicine Become Beneficial? The Perspective from Internal Medicine

Steven J. Peitzman

I begin by slightly changing the rules. I look back towards the notion of "internist" as a largely consulting physician, trained to care for serious and sometimes complex diseases, in office or hospital. Such a role—coupled frequently with clinical or pathological research—in fact defined the internist during the first half of this century. Though many internists cultivated a special interest in one or another disease, the structured fragmentation of internal medicine into numerous subspecialties had hardly begun; and the phrase "primary care internal medicine" would have seemed a puzzling contradiction in terms.

No doubt most persons seeking medical aid in the past suffered not with the major diseases dealt with today by internists but rather with catarrh, cough, rheumatism, or diarrhea—the vast majority of which were and are self-limited. They get better if left alone. Regrettably, most of the time neither patient nor doctor *can* leave them alone. In this paper, I shall consider an internist's roster of relatively common diseases capable of causing death or extreme discomfort and disability, e.g., pneumonia, tuberculosis, diabetes mellitus, cirrhosis of the liver, gout, angina, and asthma. These disorders have been relatively well defined for at least a

hundred years, so one can comfortably allow comparisons between 1910, 1940, and 1960.

Several considerations confound the assigned task. As William Rothstein has pointed out, the prevalence—and sometimes even the attributes—of diseases may change over years or decades, while therapeutics also evolves. When typhoid fever was still common in 1900, the lack of effective treatment was a major failure of medicine. By the time such treatment appeared, typhoid had largely disappeared and the overall benefit was small. Ischemic heart disease seems to have become increasingly more prevalent as the twentieth century progressed, so improved therapy for angina and myocardial infarction has meant a great deal. The point is this: disease and therapeutics are in dynamic relationship, and it is not always easy to estimate benefit.

Lawrence J. Henderson probably had in mind (supposing he actually said or wrote the assertion that convened these essays) the use of medicines, surgery, or other active therapies. But interaction of patient and competent physician may produce other benefits. The mind may be eased by turning a threatening problem over to someone perceived as caring and capable. Since uncertainty itself may be troubling,



William Osler, bedside at left, with a clinical clerk at a Saturday morning clinic

(Courtesy of the Osler Library, McGill Medical School)

the mere arrival at a diagnosis and some sort of explanation may offer a degree of relief. By 1910, certainly, physical diagnosis had reached perhaps its peak of refinement; radiology was seeking its role; and such chemists as Otto Folin and Donald D. Van Slyke were developing rapid assays that would soon make numerous blood tests practicable.

Diagnostic ability clearly surpassed therapeutics; while both are important, the former often satisfies the physicians while the latter is of uppermost concern to patients. Those intangibles cannot be easily estimated, of course, and I will reluctantly not consider them further.

First, I wish to look back to the therapy of some major diseases in the United States during the period Henderson suggested, ca. 1910. I will do so using a perhaps too simplistic but not entirely unreasonable device. Conveniently on my shelf sits a favorite book called *Osler's Textbook Revisited*, a "Reprint of Selected Sections with Commentaries" edited by distinguished internists and scientists A. McGehee Harvey and Victor A. McKusick.<sup>1</sup> The editors chose to use the seventh edition from 1909 of William Osler's landmark *Principles and Practice of Medicine*, the last he compiled alone. One cannot be certain, of course, that most doctors followed Osler's recommendations for treatment. But we can assume that those recommendations were at least relatively current and plausible—the choices, in fact, of an acclaimed medical practitioner, teacher, and scholar. Furthermore, the *Principles* enjoyed wide use in American medical schools, so its author's prescriptions found many readers.<sup>2</sup>

I also used Horace W. Davenport's entertaining *Doctor Dock* (which compiles the transcribed rounds teaching of Michigan's erudite clinician George Dock around the turn of the century) and several randomly selected texts of the period.<sup>3</sup>

Osler's clinical descriptions remain a delight, and the physician of today easily recognizes familiar lore. The sections on therapy, however, transport the reader back to styles of thought and practice that seem a thousand years old, not one



hundred. I mean that almost literally, since there was a distinct Hippocratic cast to the therapeutics around 1900 to 1910: a large part of it is *regimen* or *dietetics*. For pneumonia, Osler first calls for the bed to be wheeled “into the open air.” “The patient should not be too much bundled up with clothing. . . . [Use] a thin, light flannel jacket. . . . [T]he room should be bright and light, letting in the sunshine if possible.”<sup>4</sup> For acute Bright’s disease, “[G]uard the patient against cold. . . . A change of air is often beneficial, particularly a residence in a warm, equable climate.”<sup>5</sup> (Richard Bright had recommended the same thing in the 1830s.) For other diseases, cold may be of use—as “irrigation of the large bowel with cold water” for “catarrhal jaundice,” or the apparently obligatory “tubbing” of patients with typhoid. George Dock trusted the latter ceremony and enthusiastically taught it to medical students.<sup>6</sup>

Dietetics in our narrower sense occupied in 1910 an importance scarcely conceivable today—and not only for diabetes, obesity, or gout. For rheumatic fever the patient (who should wear “a light flannel cape about the shoulders” but “sleep in blankets, not sheets”) must be freely given milk, perhaps “diluted with alkaline mineral waters,” as well as lemonade, oatmeal, and a favorite of the Hippocratic writings (at least as translated), barley water. Osler’s dietary guidance for typhoid fever requires a half-page of small type, and once again lemonade and barley water turn up. None of that is atypical: in the 1920s and 1930s a meticulously planned diet stood paramount in the up-to-date treatment of the seriously ill. A hospital kitchen in 1930 might easily offer fifty or more specific diets.<sup>7</sup>

What about drug therapy? George Dock

in 1900 suggested a list of twenty essential drugs for the practitioner. It comprised agents we still credit, including opium, quinine, colchicum, digitalis, salicylic acid, atropine, and nitroglycerine.<sup>8</sup> But Dock worked in what to us seems an alien therapeutic world: his list also included arsenic, strychnine (widely prescribed as a cardiovascular “tonic”), calomel, ipecac, and three salts of iodine. Osler liked “the wine or tincture of colchicum” for gout “in combination with the citrate of potash or the citrate of lithium.” First, however, he noted that “the local hot-air treatment may be tried” and that a “brisk mercurial purge is always advantageous at the outset.”<sup>9</sup> He did not explain why; perhaps it diverted the patient’s attention from the importunate podagra.

“Pneumonia,” writes Osler with assurance, “is a self-limited disease, which can neither be aborted nor cut short by any known means at our command.”<sup>10</sup> Oddly, he soon follows with a contradiction: “Certain measures are believed to have an influence in arresting, controlling, or cutting short the disease.”<sup>11</sup> He reports having seen cases in which bleeding “was very beneficial.” He alludes to the use of *veratrum viride* and *digitalis*; of those he is skeptical, but both were clearly used in treating pneumonia in the period. Osler also discusses the new antipneumococcal serum, which would gain an important role before the advent of antimicrobials.

There are other, greater surprises in the 1909 *Principles and Practice of Medicine*. Its author predictably looked to diet as the mainstay for treating diabetes, and he provided detailed guidance. But under “medicinal treatment,” which he considered “most unsatisfactory,” Osler proclaimed that “opium alone stands the test of experience as a remedy capable of

## DOCK'S TWENTY DRUGS

Chapter 29 of George R. Herrmann's *Methods in Medicine: The Manual of the Medical Service of George Dock* (St. Louis: C. V. Mosby Company)

### General Rules

Whenever possible each drug should be given alone so that its effects can be more clearly observed. Close observation must be made for the desired action.

It is better to begin with one or at the most two preparations of a drug. In general drugs are not to be used to reduce temperature.

The twenty drugs are as follows:

- |                                  |  |
|----------------------------------|--|
| 1. Opium.                        | 14. Calomel, sodium sulphate, castor oil, cascara. |
| 2. Arsenic.                      | 15. Bismuth.                                       |
| 3. Iodides and iodine.           | 16. Nitrites.                                      |
| 4. Iron.                         | 17. Acid hydrochloric; alkali, sodium bicarbonate. |
| 5. Quinine.                      | 18. Ipecac.  |
| 6. Digitalis.                    | 19. Male fern, santalin, thymol or chenopodium.    |
| 7. Strychnia.                    | 20. Sera, vaccines, opotherapy, thyroxin, etc.     |
| 8. Salicylates.                  |  |
| 9. Atropin.                      |  |
| 10. Bromides.                    |  |
| 11. Chloral, veronal or trional. |  |
| 12. Ammonium chloride, balsams.  |  |
| 13. Phenacetin.                  |  |

limiting the progress of the disease."<sup>12</sup> Opium for diabetes?

It is essential and charitable to remember that intelligent and observant physicians—some patients too, presumably—thought that these things worked. I conclude, however, that save cases of malaria, gout, congestive heart failure, and not much more, few patients with major nonsurgical diseases stood much chance of objective benefit from seeing a doctor in 1910–1912. Henderson was generous to his own day.

Internal medicine welcomed two major advances in the 1920s: insulin for diabetes, and liver diet for pernicious anemia. Both won Nobel Prizes for those who brought them to fruition.<sup>13</sup> The importance of insulin cannot be denied, but diabetes, at least the "juvenile" or insulinopenic form, was not an especially common disease in the 1920s. The celebrated liver cure for pernicious anemia served as an important model, but rather few persons had that disease either.

Paul Beeson's useful comparison of therapeutics in 1927 with 1975 (as reflected in a standard text) not only reveals surprisingly little medical treatment for major disease in the 1920s but also a lingering use of such old nonspecifics as strychnine and castor oil.<sup>14</sup>

As confirmation, the twelfth edition of A. A. Stevens's popular *Manual of the Practice of Medicine* of 1928 recommends: for pneumonia, milk, junket, warm jacket, wet cups, digitalis, caffeine, strychnine, and the horse serum; for typhoid, an airy room, correct diet, and "tubbing"; for cirrhosis, "no alcohol," bland diet, theobromin, such diuretics as jalap and elaterium, and "Guy's Pill," a hoary mixture of digitalis, squill, and mercury.<sup>15</sup>

With the 1930s came something distinctly new and remarkable—the sulfa antimicrobials. True, by 1940 infectious disease had yielded to cardiac disorders and cancer as major causes of death, but effective treatment of pneumonia or meningitis meant more than a little to the persons who happened to have one of those diagnoses. Unexpectedly, the sulfa antimicrobials of the 1930s would in the 1950s spawn both oral antihyperglycemic drugs and the safe and effective thiazide diuretics, whose antihypertensive properties found extensive preventive use. Also



For his isolation of insulin, Frederick G. Banting was awarded a Nobel Prize in 1923.

(Courtesy of the Southern Illinois University School of Medicine)

during the 1930s and 1940s, animophylline—though not a new agent—came into important use for relief of asthma, while organic mercurial diuretics were perfected for treatment of heart failure. Diphenylhydantoin (or phenytoin, better known as Dilantin) appeared in 1938 as a clear and enduring advance for controlling epilepsy.

The 1940s brought the undoubted “miracle” of penicillin into widespread use and introduced the primitive and not-yet-very-miraculous artificial kidney, an omen of ascending technology. Following soon

after were the first effective antituberculosis drugs, “broad-spectrum” antibiotics, and a continuous flow of useful medications, almost all of which were developed by large pharmaceutical firms.

Borrowing from the current fashion of expressing medical research results with probabilistic “confidence intervals,” I conclude, with admitted surprise, that *somewhere between 1935 and 1945*, for the first time, an American patient seeing an internist could expect reasonably safe and efficacious (though certainly imperfect) treatment for a variety of serious ailments.

That is a modest claim. In 1940, therapy for heart disease and cancer left a great deal to the medical future, which—being now—is still struggling clumsily with these afflictions. While treatments improved greatly after 1935, “cures” for noninfectious diseases remained few. I state that with humility, having earlier in the essay too glibly mocked the prescriptions of my predecessors, who were generally doing the best they could. In berating the past, I have both committed the error of Enlightenment historians<sup>16</sup> and tacitly invited in turn the derision of my own medical successors.



## Notes

1. A. McGehee Harvey and Victor A. McKusick, eds., *Osler's Textbook Revisited: Reprint of Selected Sections with Commentaries* (New York: Appleton-Century-Crofts, 1967).

2. Paul J. Edelson, “Adopting Osler's Principles: Medical Textbooks in American Medical Schools, 1891–1906,” *Bulletin of the History of Medicine* 68 (1994): 67–84.

3. Horace W. Davenport, *Doctor Dock: Teaching and Learning Medicine at the Turn of the*

Century (New Brunswick, N.J.: Rutgers University Press, 1987).

4. Harvey and McKusick, eds., *Osler's Textbook*, 101.

5. *Ibid.*, 252.

6. *Ibid.*, 209; Davenport, *Doctor Dock*, 195-98.

7. See Steven J. Peitzman, "Louis Harry Newburgh and Metabolism at Michigan," in *Medical Lives and Scientific Medicine at Michigan, 1891-1969*, ed. Joel D. Howell (Ann Arbor: University of Michigan Press, 1993), 137-38.

8. Davenport, *Doctor Dock*.

9. Harvey and McKusick, eds., *Osler's Textbook*, 174.

10. *Ibid.*, 100.

11. *Ibid.*, 101.

12. *Ibid.*, 194.

13. Frederick G. Banting and John J. R. Macleod for insulin in 1923 (Charles Best not included), and George R. Minot, William P. Murphy, and George H. Whipple for liver treatment of pernicious anemia in 1934.

14. Paul B. Beeson, "Changes in Medical Therapy during the Past Half-Century," *Medicine* 59 (1980): 79-99.

15. A. A. Stevens, *A Manual of the Practice of Medicine: Prepared Especially for Students*, 12th ed. (Philadelphia: W. B. Saunders, 1928).

16. See Robin G. Collingwood, *The Idea of History* (London: Oxford University Press, 1956), 76-81.

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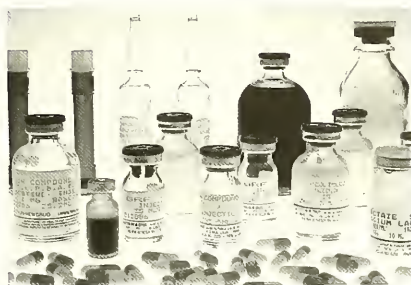
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# Drug Therapy and the Random Patient

John Parascandola

The problem of choosing a date at which American patients had a better than fifty-fifty chance of benefiting from a consultation with a doctor is not an easy one, even when limiting the subject to a particular area of therapeutics. As William Rothstein has pointed out in the Introduction, such factors as the pattern of diseases encountered by the average physician and the demographics of the patient population that he or she treats have changed significantly over the course of time. Those changes, of course, have had important implications for both the types of therapies (including drugs) employed and for an evaluation of their effectiveness. We have no clear, simple picture of the mythical "average patient" encountered by the "average physician" (in hospital, clinic, or private office) in any given time period.

The situation is further complicated by the possible meanings of Lawrence J. Henderson's term "benefited." Almost any patient, whether his or her medical problem is trivial or serious, may "benefit" from the reassurance and the psychological effect provided by a visit to the doctor, which could include a prescription for a medicine. The body's natural defense mechanisms insure that most patients will eventually recover from their illnesses without treatment in any case. I choose to interpret "benefited" to mean that the physician was able to do something to alter the course of the disease for the better or,



*Containers of experimental new drugs for clinical testing at the National Institutes of Health*

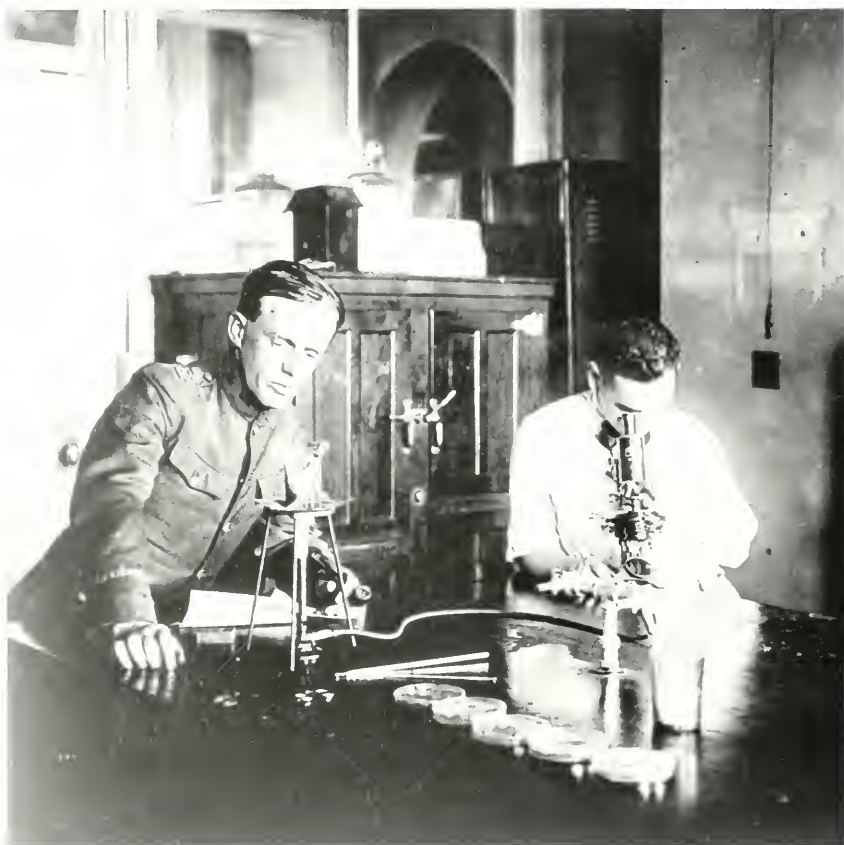
*(Courtesy of the United States Public Health Service)*

failing that, to relieve serious symptoms (such as substantial pain or high fever, rather than minor discomfort) significantly affecting the well-being of the patient. In my case, the "something" would involve a drug.

Given that assumption, I would reject Henderson's date range of 1910 to 1912 with respect to drug therapy. Although able to provide some symptomatic relief in many cases, there was little the physician of that period could do with drugs to alter the course of most of the diseases that he or she faced. For example, there were fewer than a handful of available drugs (such as quinine, diphtheria antitoxin, and the then newly introduced Salvarsan) to combat the infectious diseases that were still responsible for much of the country's morbidity and mortality.

I would argue that the transition from largely ineffective to largely effective therapeutic measures, with respect to drugs, did not occur until after the Second World





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*Scientists at work in the Division of Pathology and Bacteriology of the Hygienic Laboratory, forerunner of the National Institutes of Health, circa 1925*

*(Courtesy of the United States Public Health Service)*

War, let us say about the mid-1950s (like Henderson, I choose a range of several years rather than just one). There were few antimicrobial drugs before the 1930s, and only diphtheria antitoxin and a couple of sera were effective in treating a patient suffering from a bacterial disease. The introduction of Prontosil into clinical medicine in 1935, followed by the development of a number of other sulfa drugs over the next few years, represented a significant breakthrough in the chemotherapy of infectious (especially bacterial) disease. During the Second World War, the amazing therapeutic properties of penicillin were established. Methods were soon developed for producing it on so large a scale that by 1945 it was widely available in American pharmacies. Streptomycin was discovered in 1943, and the first of the broad-spectrum antibiotics, such as chlortetracycline, were introduced in the last years of the decade. Among the many infectious diseases that could be treated by one or another antibiotic were pneumococcal pneumonia, rheumatic fever, bacterial endocarditis, syphilis, gonorrhea, tuberculosis, meningococcal meningitis, diphtheria, typhus, and Rocky Mountain spotted fever.

Thus, by the early 1950s, the physician had a significant armamentarium of drugs for the effective treatment of many common infectious diseases, a factor that plays a major part in my choice of a date. Although vaccines and other public health measures had reduced the toll taken by infectious diseases, they continued to be a major cause of illness and a significant threat to life at midcentury, and the sulfa drugs and antibiotics available then provided doctors with powerful weapons to combat them. For example, a Federal Trade Commission study examined mortality sta-

tistics for eight important diseases for which antibiotics offered effective therapy and found that the decrease in the number of total deaths for those diseases in the period 1945–1955 was 56.4 percent (as opposed to a decline of only 8.1 percent for all other causes of death). Antibiotics also opened the door to important advances in surgery, such as cardiac surgery and organ transplantation, by helping to control infections in such procedures. Of course, there were (and still are) many viral infections for which the physician could provide little but symptomatic relief.

The benefits of new drug therapies extended beyond infectious diseases. The introduction of hormones and vitamins as drugs to treat such deficiency diseases as rickets, pellagra, and diabetes took place over a period of several decades, but by the 1950s the number and variety of such substances were sufficiently large and the understanding of their actions sufficiently great that their impact was being fully felt. Some of those substances, such as vitamin B12 and cortisone, were not discovered until the late 1940s.

The treatment of other significant diseases, such as allergy, mental illness, congestive heart failure, and hypertension, was enhanced by the introduction of new drugs in the mid-twentieth century. Although antihistamines had been developed as early as the 1930s, it was not until the late 1940s that they were being substantially used in the treatment of allergic disorders and other conditions. The early 1950s saw the introduction of chlorpromazine, the first drug that enjoyed widespread success in the treatment of mental illness, opening up the field of psychopharmacology. The thiazides, the first safe diuretics, were introduced in 1957 for the treatment of

congestive heart failure and high blood pressure, among the major causes of death by that time.

The mid-1950s may seem conservative for our purposes, given that many of the drugs mentioned above were discovered before 1950. One must recognize, however, that there is a gap between the discovery of a new drug and its widespread (and appropriate) use in medical practice. In addition, it is the accumulation of those pharmaceuticals by the mid-1950s that gives one the confidence to say that the average patient was clearly likely to benefit (using the term as defined above) in the treatment of his or her medical problem through the physician's prescription of a drug.

By the mid-1950s, the physician could provide what we believe to be effective pharmaceutical treatments for a wide variety of infectious diseases, for certain types of cardiovascular problems, for some mental and neurological illnesses, for most hormone and vitamin deficiencies, for many allergic reactions, and so forth. Many drugs of limited effectiveness and relatively high toxicity (which reduced the "benefit" involved in their use) had been replaced by safer and/or more efficacious medicines (e.g., Salvarsan by penicillin, mercury diuretics by thiazides). Those treatments did not always involve a complete "cure" but did alter the course of the disease for the better and/or relieved serious symptoms that significantly affected the health and well-being of the patient.



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# American Psychiatry: From Hospital to Community in Modern America

Gerald N. Grob

Toward the close of the nineteenth century, Henry P. Stearns, superintendent of one of the oldest and most prestigious private American mental hospitals, pointed to a fundamental distinction between insanity and other diseases.

The distinction was not between a psychological and a somatic explanation; insanity involved changes in "the elemental tissue of the nerve" brought about by environmental stresses. Such changes affected the ability to function and thus influenced behavior. In that sense the difference between insanity and other diseases was minimal. But other maladies—no matter how severe—did not preclude the exercise of individual choice and volition. Sick persons could select their own physician and decide where and how they would be treated. Most insane persons, by contrast, could not be cared for in their homes or could not make decisions about their future. Their condition, Stearns concluded, made it "imperative for the highest interests of society, that governments interpose and make provision for their care as wards of the State, in a greater or less degree."<sup>1</sup>

Mentally ill persons, in other words, required institutions under the control of physicians who specialized in providing a judicious combination of care and treatments that included drugs, tonics, laxatives, occupational therapy, hydrotherapy, and a

variety of other nonspecific interventions.

By 1900 it was also evident that the specialty of psychiatry had diverged significantly from the rest of medicine.<sup>2</sup> Psychiatrists for the most part dealt with disorders that were persistent and chronic; physicians in general practice saw patients with acute infectious diseases of brief duration. The former were as preoccupied with care and management as they were with treatment; the latter focused on diagnosis and short-term treatments (often of dubious effectiveness). Because psychiatrists were employed overwhelmingly in state hospitals and seemed far removed from the institutions that defined the character of the new scientific medicine (laboratories, medical schools, and teaching hospitals), they were perceived by their medical colleagues as hopelessly backward and out of touch.

Indeed, in 1894 S. Weir Mitchell, the renowned neurologist, castigated institutional psychiatrists for their isolation. "You were the first of the specialists," he noted, "and you have never come back into line. It is easy to see how this came about. You soon began to live apart and you still do so. Your hospitals are not our hospitals; your ways are not our ways. You live out of range of critical shot; you are not preceded and followed in your wards by clever rivals, or watched by able residents fresh with the learning of the schools." Mitchell went on

to deplore the absence of a spirit of scientific research, the distrust of asylum therapeutics, and the obsession with administrative and managerial concerns.<sup>3</sup>

After 1945 the mental health scene underwent a dramatic transformation. First, mental hospitals slowly began to lose their social and medical legitimacy. Second, there was a shift in psychiatric thinking that led to the creation of a psychodynamic and psychoanalytic model emphasizing life experiences and the role of socioenvironmental factors in the etiology of mental disorders. Third, the experiences of World War II appeared to demonstrate the efficacy of community and outpatient treatment of disturbed persons. Fourth, the belief that early intervention in the community would be effective in preventing subsequent hospitalization became popular. Fifth, the development of new therapies—including psychotropic drugs, psychotherapy, and milieu therapy—held out the promise of a more normal existence for patients outside of mental institutions. Sixth, psychiatrists largely abandoned their institutional origins, and private practice became the norm rather than the exception. Finally, an enhanced social welfare role of the federal government not only began to diminish the authority of state governments but also hastened the transition from an institutionally-based policy to a community-oriented one. The transition was reflected in two important pieces of federal legislation—the National Mental Health Act of 1946 (which created the National Institute of Mental Health) and the Community Mental Health Centers Act of 1963.<sup>4</sup>

Although those developments did not immediately influence the condition of most severely and chronically mentally ill persons, they laid the foundations for the

changes that occurred after 1970. By then, psychiatry had undergone still another transformation as a biologically-oriented approach overwhelmed the psychodynamic tradition that had dominated during the preceding two decades. Psychiatry, insisted leading figures, rested on a foundation of data growing out of advances in neuroscience and utilizing such new technologies as nuclear magnetic resonance spectroscopy, positron emission tomography, and electrical-activity mapping that clarified structural, metabolic, and electrophysiologic abnormalities in the brains of psychiatric patients.<sup>5</sup> Equally significant, psychiatrists could draw upon therapies whose efficacy in many respects rivaled those of other medical and surgical specialties employing sophisticated technologies and interventions. The psychiatric armamentarium included a variety of drugs capable of controlling extreme behavioral symptoms associated with severe mental disorders, psychotherapies, milieu and other environmental therapies, and such controversial treatments as electroconvulsive therapy (ECT). Patient contacts with psychiatrists increasingly took place in private offices or in general hospital wards.

The new biological psychiatry, however important, could not by itself transform in fundamental ways the institutionally-oriented policy that had prevailed for well over a century. To create a community policy required large resources that would provide for the basic human needs of a disabled and handicapped population. Fortunately, new federal entitlement programs provided those resources, albeit in an indirect manner. The passage of Medicaid in 1965 led to a transfer of hundreds of thousands of elderly patients from state mental hospitals to chronic care



nursing facilities. More important, the Social Security Disability Insurance (SSDI) program—which enabled eligible persons age fifty and over to receive disability benefits—was ultimately expanded to cover the mentally disabled. In 1972 the Social Security Act was further amended to provide coverage for individuals who did not qualify for benefits. Under the provisions of Supplemental Security Income (SSI) for the aged, the disabled, and the blind, all those whose age or disability made them incapable of holding a job became eligible for income support. Those entitlement programs were administered and fully funded by the federal government; their affiliation with Social Security had the added virtue of minimizing the stigmatization often associated with welfare. Moreover, individuals who were covered by SSDI or SSI were also eligible for Medicaid or Medicare, housing supplements, and food stamps. As a result, most states during and after the 1970s were attracted to a policy of deinstitutionalizing the mentally ill. Patients would presumably benefit by living in the community, and the fiscal burdens of maintaining an expensive public mental hospital system would be reduced as federal entitlements assumed many of the costs of community care.

To be sure, not all individuals benefited from the shift in policy. The major exception was a smaller subgroup of young adult chronic patients who had a dual diagnosis of a severe mental illness and substance abuse. Most were part of the baby boom that occurred between 1946 and 1960, when more than fifty-nine million births were recorded. Restless and mobile, they were the first generation of psychiatric patients to reach adulthood in the community. Although their disorders were not



*In the 1970s, patient contacts with psychiatrists increasingly took place in private offices or in general hospital wards.*

*(Courtesy of the Southern Illinois University School of Medicine)*

fundamentally different from those of their predecessors, they behaved in quite different ways. They tended to emulate the behavior of their age peers, who were often hostile toward conventions and authority. The young adult mentally ill exhibited aggressiveness and volatility; they were noncompliant. They generally fell into the schizophrenic category, although affective disorders and borderline personalities were present. Above all, they lacked functional and adaptive skills. High rates of alcoholism and drug abuse only exacerbated their volatile behavior. Their mobility and lack of coping skills resulted in high rates of homelessness. Many traveled and lived together on the streets, thereby reinforcing each other's pathology. Socially isolated from their



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*Deinstitutionalization, mobility, and lack of coping skills in new generations of psychiatric patients resulted in high rates of homelessness. This scene is from "The Case of Vince," produced by Southern Illinois University School of Medicine.*

families, they aroused negative reactions from mental health professionals, if only because chronicity and substance abuse proved an intractable combination and contradicted the medical dream of cure.

Although a minority, the young adult chronic population with a dual diagnosis helped to shape public perceptions of deinstitutionalization and the mental health scene. But the popular image of severely and persistently mentally ill adults—using drugs, wandering, and living

on the streets of virtually every urban area, threatening residents, and resisting treatment and hospitalization—is at best a partial truth. The fact of the matter is that a large proportion of severely and persistently mentally ill persons have made a more-or-less successful transition to community life as a result of federal disability and entitlement programs. "In fact," two authorities have recently noted, "the situation is indeed much better for many people, and overall it is much better

than it might have been. . . . [W]hile many people still do not have adequate incomes or access to the services theoretically provided through Medicaid and Medicare, the fact that the structure exists within these federal programs to meet the needs of these individuals represents a major step forward."<sup>6</sup>

Data from the Vermont Longitudinal Research Project offered dramatic evidence that individuals with severe mental illnesses who were provided with a range of comprehensive services could live in the community. Periodic follow-up evaluations conducted over a twenty-five-year period indicated that two thirds could be maintained in the community "if sufficient transitional facilities and adequate aftercare was provided." Those results were confirmed by similar longitudinal studies throughout the country (especially the program developed during the 1960s in Madison, Wisconsin) and in Switzerland and Germany.<sup>7</sup> A variety of other experiments have confirmed that individuals with severe mental disorders prefer and do better in community settings that both dispense economic resources (particularly vocational rehabilitation) and foster a kind of empowerment that provides a feeling of mastery rather than a sense of dependency.

That psychiatry and the mental health system have changed in fundamental ways during the twentieth century is obvious. The major difference, of course, is the decline (but not the disappearance) of the public mental hospital, the institution that had symbolized mental health policy since the mid-nineteenth century. Yet there is an underlying reality that has remained constant. Nineteenth-century psychiatrists were fully cognizant of the fact that their hospitals served an indispensable function

in providing patients with the basic necessities of life. They were aware of the impact that persistent mental illnesses had on individuals, families, and society, and they recognized that disability and dependency often followed.

Like their predecessors, contemporary psychiatrists also deal with illnesses that are often chronic in nature. Severe and persistent mental disorders—like cardiovascular, renal, and other chronic degenerative disorders—require a judicious mix of medical therapies and social support programs. Psychiatric therapies can also alleviate symptoms and permit individuals to live in the community, but they do not lead to cures within the conventional meaning of that term. There is persuasive evidence that programs that integrate mental health services, entitlements, housing, and social supports often minimize the need for prolonged hospitalization and foster a better quality of life. Many (but not all) contemporary psychiatrists recognize that chronic mental illnesses cannot be treated in isolation, and that care and management are as crucial as psychiatric therapies. Hopefully, a preoccupation with the biological basis of mental disorders will not obscure the continuing need for supportive systems of care.

The evolution of psychiatry and mental health policy during the past two centuries holds important insights for those who are concerned with health policy.<sup>8</sup> Unlike the general health care system, the mental health system traditionally dealt with a population whose chronic illness created dependency. By definition, chronic diseases do not lend themselves to cure; they require a judicious blend of care, management, and therapy. As the general health care system increasingly confronts chronic illnesses (as compared with its

earlier preoccupation with acute infectious diseases), those involved in its reshaping may well benefit from the experiences of their psychiatric colleagues. It would be ironic if psychiatry—long regarded as an anachronistic medical specialty—would become a model for the future reconstruction of America's health care system.



## Notes

1. Henry P. Stearns, *Insanity: Its Causes and Prevention* (New York: G. P. Putnam's Sons, 1883), 6–7, 62.

2. For an analysis of the development of American psychiatry in the nineteenth century and the forces that shaped it, see Gerald N. Grob, *Mental Institutions in America: Social Policy to 1875* (New York: Free Press, 1973), and *Mental Illness and American Society, 1875–1940* (Princeton, N.J.: Princeton University Press, 1983).

3. S. Weir Mitchell, "Address Before the Fiftieth Annual Meeting of the American Medico-Psychological Association . . . 1894," *American Medico-Psychological Association Proceedings* 1 (1894): 101–21.

4. For a detailed analysis of the changes in mental health policy in the postwar era, see Gerald N. Grob, *From Asylum to Community: Mental Health Policy in Modern America* (Princeton, N.J.: Princeton University Press, 1991).

5. Joseph T. Coyle, "Neuroscience and Psychiatry," in *The American Psychiatric Press Textbook of Psychiatry*, ed. John A. Talbott, Robert E. Hales, and Stuart C. Yudofsky (Washington, D.C.: American Psychiatric Press, 1988), 3.

6. Chris Koyanagi and Howard H. Goldman, "The Quiet Success of the National Plan for the Chronically Mentally Ill," *Hospital & Community Psychiatry* 42 (1991): 901.

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of Persons with Severe Mental Illness, I: Methodology, Study Sample, and Overall Status 32 Years Later" and "The Vermont Longitudinal Study of Persons with Severe Mental Illness, II: Long-Term Outcome of Subjects Who Retrospectively Met DSM-III Criteria for Schizophrenia," *American Journal of Psychiatry* 144 (1986): 718–35.

8. An overview of mental health policy in the United States from the colonial period to the present can be found in Gerald N. Grob, *The Mad Among Us: A History of the Care of America's Mentally Ill* (New York: Free Press, 1994).

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# The Iconography of Child Public Health: Between Medicine and Reform

Janet Golden

During the interwar period, the links between child public health, biomedicine, and social welfare grew more tenuous. Child public health programs, once a central part of both medical and welfare efforts, operated with an increasingly restricted mandate. They fit neither in the world of pediatric medicine, which was evolving into an office-based specialty, nor in the hospital, which had begun eschewing its role as health care site for the poor in favor of a more middle-class clientele.<sup>1</sup> At the same time, the rejection of maternity insurance, the cessation of federal support for the Sheppard-Towner Act in 1929, and the curtailment of child-focused social welfare initiatives in the opening years of the Great Depression caused the severing of ties between health and welfare reformers as the latter began to work on obtaining federal support for new income-based programs.<sup>2</sup> Yet many programs, endured on the local level, attempting to provide children with an array of services aimed at preserving their health and improving their standard of living.

This article is a case study of one of those local efforts, based on an analysis of the images that document its work. In analyzing those images, I will argue that they present a distinct photographic genre that developed in the Progressive Era and

expanded during the interwar years. Child public health imagery imported stylistic conventions from two earlier genres—reform photography (sometimes termed documentary social realism) and medical photography. A distinct genre, child public health imagery presents to historians a tableaux that might be titled “the path not taken,” and thus it has been little studied.<sup>3</sup> If we pay attention to the inclusiveness of child public health images and incorporate them into our histories, however, we can recapture and interpret more fully the brief period in which the trajectories of hospital development, urban public health initiatives, and social welfare programs overlapped.

My analysis is based on an examination of 276 glass lantern slides collected by Dr. Howard Childs Carpenter (1878–1955) and now located in the College of Physicians of Philadelphia.<sup>4</sup> Some slides document the particular child health effort Carpenter was associated with, but the collection as a whole ranges very broadly. The majority of the lantern slides (195 of the 276) are made from photographic images, while others are of paintings, posters, cartoons, architectural drawings, and graphs (see Table 1). The images portray child public health as it was conceived by numerous public and private health, medical, and welfare organizations



Types of Images in the Carpenter Slide Collection	
Photographs	195
Drawings, prints, and lithographs	28
Paintings	20
Posters	17
Cartoons	9
Charts and graphs	5
X rays	1
Text only	1
TOTAL	276

operating throughout the United States. They also display the lives of children more generally—including images of Native American and foreign youngsters, paintings of the madonna and child, and even a few portraits of leaders of the child public health movement.

#### **The Carpenter Lantern Slides and the Iconography of Child Public Health**

Carpenter founded the Department for the Prevention of Diseases (DPD) at the Children's Hospital of Philadelphia in 1914.<sup>5</sup> In many ways, it was a quintessential progressive reform program, aiming to apply the skills of an array of professionals—physicians, nurses, and health educators—to the task of preventing disease in order to avoid the less efficient job of curing those who had fallen ill. The slide collection carefully documents the work of the DPD, including images that appeared in the hospital's annual reports. Yet, the collection as a whole ranged well beyond the confines of the clinics and the neighborhood.

The iconographic conventions of child public health are relatively straightforward. The most common subjects are the child, the mother, and the health care provider. Stylistically, the images tend to be didactic, and they often included captions. The settings range broadly, from the clinic to the home and from the urban slum to the rural barn. Among the topics presented are infant feeding, household safety, food science, and the environmental threats to health. Indeed, the thematic sweep is one of its most significant characteristics.

Images in the Carpenter Collection came from state and local boards of health (including those in Michigan, Illinois, Kansas, and the Bureau of Child Hygiene of the New York City Department of Health) and from at least one federal agency, the United States Department of Agriculture. Carpenter also acquired images from voluntary health, medical, and educational organizations, including the American Association for Study and Prevention of Infant Mortality, the American Social Hygiene Association, the National Council for the Prevention of Blindness, the National Association for the Study and Prevention of Tuberculosis, the American Medical Association, the Boy Scouts of America, and the National Educational Association. Other slides were apparently purchased from professional supply houses; for example, lantern slides relating to milk production came from the International Harvester Corporation.<sup>6</sup>

Viewed individually, the lantern slides present images that resemble those typically defined as medical or reform photographs. There are classic medical scenes of physicians ministering to individual patients in the clinic, for example, and street scenes typical of documentary social realism that expose

slum life to viewers. When considered as a single entity, however, Carpenter's collection presents a coherent, if anachronistic, vision different from each of those enterprises. Overall, the images depict neither the technical/scientific/institutional world of medicine nor do they represent the political and increasingly fragmented world of social reform that eventually focused on particular issues, such as child labor. Instead, the collection demonstrates in visual terms Carpenter's faith that health created welfare, that saving children saved society, that the neighborhood (rather than the hospital or the legislative chamber) was the appropriate site for intervention, and that the mother was the key figure in achieving the desired transformation in the lives of children.

Carpenter used his slides to reach out to the public and to professionals. He exhibited the images when he delivered a keynote address on "Health Teaching" at the opening of a new building at the Children's Hospital of Philadelphia.<sup>7</sup> In that setting, the slides were viewed by dignitaries and by members of the public sympathetic to the work of the hospitals—an audience similar to the viewers of reform photographs.

Mothers and children visiting the DPD clinics and classes comprised a second and perhaps more important audience for the lantern slides. Notes in the collection indicate that two sets of images had been grouped and labeled, presumably for use in instructing those visitors. One bore the handwritten title "Infant Hygiene," the other "Care of the Baby." Other child health programs no doubt had similar compilations of images, ready for use in educating clinic patients.<sup>8</sup> Just as a varied subject matter characterized child public health imagery, so too did its objective of

communicating with both an educated public and a client population.

### **Reform Photography and Child Public Health Photography**

In the 1880s Jacob Riis, the Danish-born muckraking photojournalist and reformer, began giving lantern-slide lectures on "The Other Half—How It Lives and Dies in New York," inaugurating what would become a popular method of arousing moral indignation among American middle-class viewers.<sup>9</sup> Other investigators followed Riis's lead, exploring the back streets of America's growing cities to plumb the depths of poverty and shoot candid pictures of immigrant ghettos; the business of selling lantern slides for use in lectures soon came into vogue. An optical company in New York, for example, marketed to "exhibitors and lecturers" a set of two hundred images titled "The Dark Side of New York."<sup>10</sup> By the twentieth century, as social justice and social welfare crusades grew more focused, photographers working for various organizations would aim their cameras at specific targets. The National Child Labor Committee, for example, sent Lewis Hine to capture scenes of children employed in southern mills.<sup>11</sup>

Photography became central to the reform cause in the nineteenth century, and the images bequeathed to us from that movement allow us to see not only what cities and the poor "looked like" but also to interpret the ways in which outsiders gazed at the poor. According to Peter Bacon Hales, the photographic conventions employed within reform photography at the turn of the century encompassed four elements: (1) human subjects; (2) environmental cues that were "at best both boldly graphic and symbolic"; (3) a direct

Fig. 1. An orderly clinic scene of mothers and babies at the Department for the Prevention of Diseases



stare into the camera lens “to invoke contact between the viewer and the slum subject”; and (4) signs of “dynamic life.”<sup>12</sup> Other common stylistic devices included side-by-side images contrasting the real and the ideal, images depicting the subject before and after intervention, and scenes in which the subject and the reformer posed together. The growing iconographic complexity reflected the numerous intentions of the photographs: to educate, to inspire, to stimulate reform, and to promote donations.<sup>13</sup>

In reform photographs, street urchins, mill girls, and slag-heap boys stared at the viewer with a nonchalance that underscored the hard lessons already learned. Their toughness (and ultimate vulnerability) conveyed a warning: without proper supervision and sufficient schooling—in short, without proper social intervention—the youngsters would fall prey to criminal influences and contribute to the breakdown of the social order. Paradoxically, documentary social realism invoked as well

a small sense of reassurance, instructing its audience that the problems they witnessed could be remedied.<sup>14</sup>

Child public health images encapsulated a similar duality—presenting viewers with both a threat and a promise. Unlike reform images, however, they emphasized the latter. The subjects of many child public health images—the very young—seemed intrinsically more vulnerable and less threatening than the older children displayed in reform photographs. Moreover, the infants and children in child public health scenes typically appeared under the care of physicians, nurses, and health teachers, seeming to be contained and cared for—unlike the youth in reform photographs, who appeared to be fending for themselves in the street or on the factory floor. Figure 1, a classic clinic scene from the DPD, illustrates the ways in which child public health imagery attempted to both assure and inspire its viewers. The small waiting room in which sitting mothers hold their infants is quiet and

orderly. A physician in a white coat sits at a table, waiting to consult with each mother and presumably to offer the advice that will lead to good child rearing and healthy, well-behaved children. The entire scene telegraphs a message of control and, as many medical photographs, honors the authority of the doctor. The image also bears the imprint of reform photography because the mothers gaze directly into the camera lens.

Child health images and documentary social realism employed different aesthetic vocabularies. While child public health photographs sometimes scrutinized their subjects directly—as in the clinic scene of Figure 1—most images (and particularly those involving children) eschewed the confrontational gaze and sought instead the friendly smile. In child public health images, the viewer stands back to watch as

adults carefully shepherd children being transformed by caregivers. In Figure 2, for example, children are photographed in the classroom, smiling at the camera, toothbrushes raised to their mouths. Figure 3, a street scene, presents girls in white dresses and boys in white shirts and ties, all wearing hats with the cross of St. George and standing aside a papier-mâché dragon in what appears to be an anti-tuberculosis parade. Neglected children, by contrast, are typically presented as being at risk. Carpenter collected a series of slides from the Brooklyn Street Railway that displayed, in sequence, children rollerskating near the trolley car, falling under the trolley wheels, and being carted off to the hospital, as well as other scenes portraying the dangers of playing on or near the tracks. In these settings, it was not the city or even the trolley that was dangerous,



Fig. 2. A school-room toothbrush drill



Fig. 3. Children in an anti-tuberculosis parade



rather it was the child who had not been taught how to play safely or who had been left without adult supervision.

The country as well as the city appears in child public health images as a dangerous place. As large-scale public works projects and investments in urban sanitation made cities healthier places in the early twentieth century, the rates of mortality and morbidity in rural areas became more visible, as did the links between the two locales.<sup>15</sup> Thus, despite the fact that Carpenter collected slides for an urban audience, he had many images of rural life. A few showed children walking barefoot down dirt roads, but the majority depicted milk and food production. There were photographs of dirty and clean milking sheds and of sickly and healthy cows. The focus on modern technology also appeared in images of clean and dirty kitchens, of new and old-fashioned butter churns, and in schematic drawings of modern plumbing.

The only pictures in which Carpenter is

identified as the photographer present the neighborhood surrounding the Children's Hospital of Philadelphia. One image bears a handwritten label "dirty alley" and gives the address; the other names the street and notes "dirt and filth." The Carpenter Collection images are clearly derivative of reform photography, particularly the documentary style used to disclose poor housing conditions.<sup>16</sup> Regardless, they lack the emotional power of those taken by skilled reform photographers sensitively working within the "street scene" genre.<sup>17</sup> There are no ragged children with dirt-smearing faces staring into the camera, indeed neither slide contains any human figures. Instead, the subject is the street itself, in need of cleaning.

In the lexicon of public health advocates, the environment was a distinct entity that contained numerous threats. The unventilated tenement, the flies that entered through unscreened windows, the milk kept unrefrigerated on a table—each imperiled the health of the child. Where



the reform photographer depicted the slum neighborhood as the source of deprivation, child public health advocates saw the many threats in each individual dwelling. Indeed, public health activists viewed the home as a vector of disease, a place in which ill health was too often nurtured by the ignorance of its inhabitants. Two slides exemplify that theme. Figure 4, "Latimer as the Nurses Found Him," shows an infant in a cramped hovel, lying swaddled on a bed as a sibling watches over him. Nearby (and barely discernible in this image) is a mother in a wheelchair and another child. In a second slide, titled "Latimer After Month of Proper Feeding," a plump and healthy Latimer is sitting erect, holding his bottle. Before-and-after images had long been standard reform fare, and the technique

was imported from reform organizations into public health imagery.<sup>18</sup> Used in the service of child public health, images such as those depicting Latimer and his family provided a vivid testimonial to the work of the hospital and clinic and a thinly veiled criticism of conditions just outside their walls.

The visual taxonomy employed by reformers typically referenced victims and saviors, including child workers and street urchins, settlement house visitors and poor families, and public health nurses and mothers. Child public health imagery incorporated another pair: disease carriers and the public health crusaders who attacked and vanquished them. Numerous public health slides illustrate rats and flies—the leading villains on the public health enemies list. In Figure 5, boys in



*Fig. 4. A sick, swaddled Latimer lying on the bed*

Fig. 5. Boys with rat traps. The slide comes from the International Harvester Company Agricultural Extension Department.



knickers stand before an unidentified woman (possibly a health teacher) with their rat traps, ready to vanquish that urban menace. Even more prominently represented in the collection is the threat of the fly. There are slides of fly bottles, built to trap the “germs with legs,” slides of various species of flies, and slides meant to teach mothers to be wary of the fly menace.<sup>19</sup> One slide, captioned “A Day in the Life of a Fly,” illustrates its migration from the garbage pile to the baby’s face, with this caption under the final image “Swat that fly. . . . Scientists say it is deadlier than the tiger or the cobra.”

Many slides bear captions, attesting to their intended use as educational material and distinguishing them from reform or medical images. One clinic picture, for example, shows a physician examining a child—a typical medical image. Yet its caption—“These mothers take their children for a thorough physical examination after any acute illness. Do you? For a thorough examination, clothes must be

removed”—demonstrates that the image was not meant to advertise medical science but to instruct those in need of medical services.

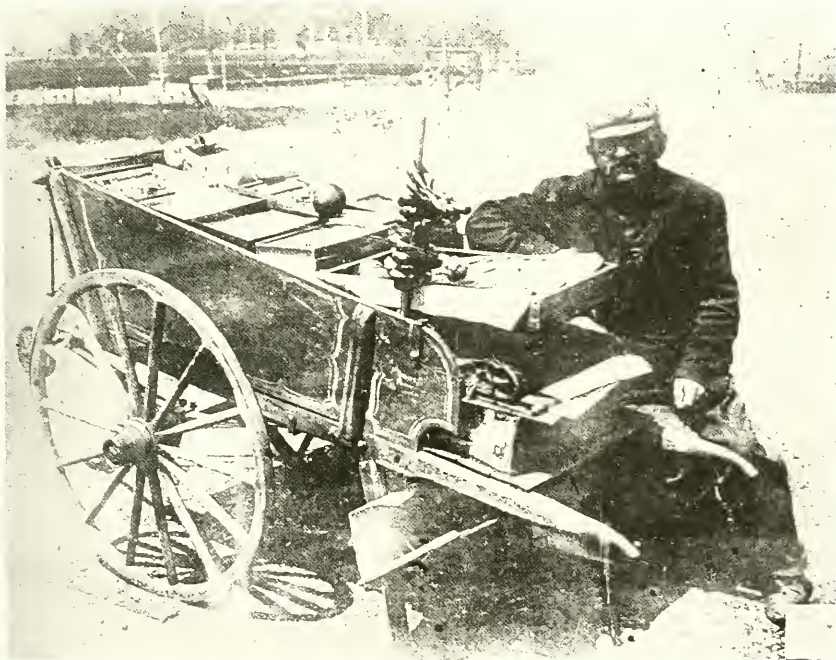
Figure 6, which Carpenter apparently had acquired from the Pennsylvania Tuberculosis Association (which used the scene in its exhibits for schoolchildren), is of a downtrodden street vendor. Reformers might deploy the image to convey the hard life of an immigrant entrepreneur, to celebrate the dignity of labor, or to invoke pity that a day of work did not yield enough income to feed a family. Public health professionals used it to engender disgust that the food being sold was uncovered and therefore vulnerable to flies and dust. There is no mistaking the intended message; the caption appearing on the image stated: “Street Dust and Germs Cover this Man’s Food. Don’t Buy from Him. Candy, Cake, Bread Should Be Kept Under Glass Cases.” The vendor is not a victim but a victimizer.

Reform imagery had a submerged yet

still palpable theme of poverty as the cause of many social problems, including high rates of infant mortality and childhood disease. Although far from radical in their approach to social inequality, reformers at least conceded its significance, and their images sometimes had a voyeuristic quality that revealed the lives of the poor. Reformers peered into the hovels to underscore the need for tenement house reform and also to reveal the lives hidden in the back alleys. Child public health leaders also knew what poverty meant in terms of death and disease among the young, but their concerns lay with the results of impoverishment—the failure to buy proper food, or ignorance about how to rear

children—and they appeared to censure families for their poverty.

The line between educating mothers and berating them often blurred in the Carpenter images, as it did within the broader child public health movement. Charles V. Chapin, a leading spokesman for the modern public health crusade, argued: “It has now been demonstrated beyond a doubt that the chief cause of a high infant death rate is the ignorance of mothers.”<sup>20</sup> With a similar message, a cartoon image obtained from the Illinois Department of Health introduced the “Seven Deadly Sins Committed by Ignorant Parents Against Their Babies.” Among them were “the wrong food,”



*Fig. 6. A street vendor in a slide from the Pennsylvania Tuberculosis Association*

Fig. 7. A poster teaching the health habits needed to avoid consumption and an early death

# Which Way Are You Going?

To Good Health and Long Life  To Consumption and Early Death



**Sleep  
With the  
Windows Open**

Clean Air  
Pure Blood  
Good Health



**Work  
and Study  
in Pure Air**

Pure Air  
Makes Mind  
and Body Alert



**Play in  
the Clean  
Open Air**

Keep Out  
of Doors as  
Much as Possible



**Eat Clean,  
Nourishing  
Food**

Keep  
Flies and Dust  
Away from Food

**Closed  
Windows  
Mean Dirty Air**

Dirty Air  
Poisoned Blood  
Death



**Dirty, Dusty,  
Hot Rooms  
are Killing**

Destructive to  
Health and  
Efficiency



**Indoor Play and  
Play in Dusty Places  
is Not Healthful Play**

Exercise  
in Dirty Air  
is Dangerous



**Dirty  
Food Kills  
Thousands**

Flies  
and Dust  
Contaminate Food



## NEVER DO THESE THINGS

Don't spit in public places; no spit no consumption.  
Don't "swap" gum, apples, etc. There's spit on used gum.  
Don't put pencils or money in mouth; there's spit on pencils and filth on money.

Don't eat candy, fruit or pastry that has been exposed  
to flies or dust; there are all kinds of germs on such.  
Don't sneeze or cough in another's face.  
Don't let others infect you this way.



"shoes too small," and "bulky wet irritating diapers." There were no suggestions as to how parents might overcome the economic impediments to replacing those objects. Similarly, Figure 7, an anti-tuberculosis poster, offered parents a choice: good health or an early death. It told tenement residents to screen their windows, warned mothers to keep milk in iceboxes, and reminded poor families of the need to purchase nourishing food. The social class distinctions between families shown in good health and those courting consumption were obvious but unmentioned.

As the images conveyed, the champions of child public health believed that children could be sprung from the trap of sickness and set free to become good workers and good citizens not by remaking society but by educating mothers and by providing health services. It was a narrow yet ultimately optimistic vision, and one that set public health apart from the increasingly political agenda of reformers. The source of much optimism within the child public health community was the expanding therapeutic and institutional base of organized medicine, which also bequeathed many stylistic conventions to the iconography of child public health.

### Medical Photography and Child Public Health Photography

As Daniel M. Fox, Christopher Lawrence, and others explain, physicians had a long tradition of using the camera to record unique morbid phenomena and characteristic clinical findings, of making pictures of themselves and their patients, of documenting life on the wards, and of enshrining operating theaters as temples of science. As Fox and Lawrence also demonstrate, the conventions of public health photography—images of children, of



*Fig. 8. Scene at the Department for the Prevention of Diseases*

poor people waiting in clinics, of dirt and slum housing, and of the visiting nurses at work—were not the core images that represented and advertised the medical profession and its workplaces to the public.<sup>21</sup>

A number of slides within the Carpenter Collection do, however, fit the definition of medical photography. Figures 8 and 9, which show children being carefully held by mothers and nurses as DPD doctors gently place stethoscopes upon their small chests, are little more than broadsides reifying medical science and its practitioners. In those slides, doctors appear both adept and kindly, their eyes focused on the patient, not meeting the gaze of the





*Fig. 9. Examination at the Department for the Prevention of Diseases*

photographer. Such scenes were emblematic in the twentieth century, assuring viewers that the ethic of caring would never be outstripped by the science of curing.

The Carpenter Collection has strikingly few purely clinical images or those that celebrate science. Among the few are an X ray of a child with rickets, a photograph of cells in a petri dish bearing a handwritten label (invisible to the viewer) that reads "washing water free from contamination," a diagram of fetal circulation, and three sagittal-section views of a newborn child. Similarly, the lantern slides show little in the way of medical imagery or technology—defined as tools for diagnosing, treating, or preventing illness. There are no operating rooms and only a few bits of hospital equipment, among

them such simple items as hospital beds and examining tables. Scientific implements and remedies are also sparsely represented. There is an anovea lamp (which gave "sun bath" treatments for rickets), some doses of diphtheria toxin-antitoxin, a stethoscope, a scale, and a few illustrations of devices meant for home use, including a steam atomizer and a croup kettle.

For the most part, medical imagery peered into the hospital, the clinic, and the medical office, portraying them as places of cleanliness and light, order and efficiency—as settings in which scientific authority and professional skills could be brought to bear on the problems of suffering individuals. Child health imagery embraced the clinic scene but also peered into the worlds that medicine had to invade and conquer. Thus, a critical theme in the Carpenter Collection is the need to convey the discoveries of modern medicine, the techniques of sanitary science, and the wisdom of health teaching to those at the farthest remove from those advantages.

Medical photographs typically displayed the manifestations of various illnesses, while child public health images depicted the conditions that caused disease. One slide offers a picture of a slovenly woman sitting with a baby in her lap as she drank from its bottle. At the bottom the caption reads: "Don't taste the milk from the bottle. Mothers who love their babies often give them diseases." Warnings about cow's milk also appear in the images, including a drawing of a cat licking the top of a milk bottle. By the cat's tongue are the words "measles, scarlet fever, tuberculosis, diphtheria, typhoid and septic sore throat." Despite the references to medical ailments, the message is clearly about how



*Fig. 10. This prenatal patient is having her blood pressure checked at the Department for the Prevention of Diseases.*

mothers are to protect the health of their children and thus prevent the appearance of disease.

A key distinction between medical and child public health slides is the array of practitioners displayed at work. Just as reform photography advertised the work of reformers and as medical photography advertised the work of doctors, so too did public health photography celebrate its employees. Nurses, clearly secondary subjects in most medical photographs, took front and center in many of the Carpenter Collection images, as did health teachers. Their presence suggested the volume of public health work undertaken autonomously by those lacking medical degrees.

The gender composition of the images presents a crucial distinction between child public health and medical imagery. There are more photographs of women—

and especially female doctors—in the former. In the United States, the percentage of female physicians peaked in 1910 at 6 percent, and a vastly disproportionate share of those practitioners engaged in what Regina Morantz-Sanchez has termed “social medicine” for reasons of choice and necessity.<sup>22</sup>

The composition of the various departments of the Children’s Hospital of Philadelphia suggests how gender structured career opportunities. Between 1915 and 1920, the DPD staff was largely male. In the 1920s, however, the number of female physicians grew so rapidly that by 1925 three of the nine doctors were women; by 1930, the staff was comprised of Carpenter and five female physicians.<sup>23</sup> Carpenter’s images therefore provide equivocal information. They show a greater number of female health workers, including physicians, than would be found

*Fig. 11. Children in a room at the Department for Prevention of Diseases. These well-dressed youngsters may be attending one of the clinic's health plays or health classes, rather than waiting for medical services.*



in a collection of medical photographs from the same period. Yet the slides cannot be mined as factual accounts of employment trends; they present a disproportionately large share of male physicians, given the staffing patterns at the DPD. Possibly Carpenter deliberately misrepresented the numbers of men in an attempt to impart status to the discipline.

A similar deception may have occurred in terms of the race of patients in both the Carpenter Collection and in other child public health photographs. Slides of the DPD show both African-American and white mothers and children visiting the clinics. Figure 10, for example, shows an African-American woman having her blood pressure checked, while Figure 11 has a racially-mixed group of children seated on benches in a clinic waiting room. African-Americans appear in relatively few scenes, however, and it is difficult to tell whether the images offered an accurate representation of the client population or

a portrait designed to appeal to funders or supporters by showing a largely white clientele.

The purpose of the images, of course, was not to give an accounting of what child public health practitioners did or whom they served. The slides served instead as educational tools and as propaganda. Seeing their links with and derivations from medical photography and reform photography makes clear how child public health advocates adapted and used familiar genres to their own purposes. They promised science—to be applied by professionals and to be taught to mothers. They presented the domain of science as vast, incorporating the home, the street, the school, the countryside, and the city. And they showed its practitioners to be numerous—with doctors at the helm of the ship of health but with nurses and health teachers as important members of the crew.

## Conclusion

Medical photographs from the 1920s introduced scenes that we continue to associate with medicine. Comparisons among doctor-patient images of the 1920s and those of later vintage reveal a common thread—such as Eugene Smith's famous 1948 *Life* magazine pictures of a country doctor or the more recent photographs of physicians at the bedsides of AIDS patients. All of them display the caring and skilled physician, a scene that is reassuringly familiar because the work of healing continues. Similarly, modern photojournalism retains the stylistic conventions of an earlier era. The youthful newsboy boldly facing the camera in the early twentieth century has been replaced by the equally young and equally bold crack-dealer (who stands, perhaps, at the same corner). And too, modern cities still contain decrepit neighborhoods and alleys with menacing faces to be captured by photojournalists and art photographers alike.

Child public health imagery, however, presents a world that has largely vanished. There are no modern equivalents of the boys with fly bottles and rat-trap boxes setting out to vanquish what in retrospect seem to be trivial enemies. Certainly, physicians still treat infants and children in public clinics, visiting nurses still instruct patients in their homes, and health teachers still endeavor to teach personal and family hygiene. Yet the expansive vision of the interwar child public health movement, which linked medical intervention to measures such as urban sanitation, afterschool health classes, and more abundant clinic care, has contracted. While some of images from the Carpenter Collection present aspects of medicine and welfare that are still familiar, the collection

as a whole presents a world that is no more.

When scholars neglect to study images such as those in the Carpenter Collection they implicitly and perhaps correctly acknowledge that broadscale child public health work in the 1920s was not the foundation of the medical system we have today. Nevertheless, in discarding depictions of what became, in retrospect, small historical detours, historians lose the chance to interpret the full course of the journey. The stylistic similarities and differences among child health imagery, medical imagery, and reform imagery testify to the links between those endeavors as well as displaying some reasons for their ultimate unraveling. Like the written record of this era, the visual account helps explain how, as medicine and social welfare evolved into distinct disciplines in the late-twentieth century, child public health was pushed to the periphery of each. The images, as the written record, deserve further study and interpretation.



## Notes

1. On the shifting role of pediatrics, see Thomas E. Cone, Jr., *History of American Pediatrics* (Boston: Little Brown, 1979) and Sydney A. Halpern, *American Pediatrics: The Social Dynamics of Professionalism, 1880–1980* (Berkeley: University of California Press, 1988). On the transformation of the hospital, see Charles E. Rosenberg, *The Care of Strangers: The Rise of America's Hospital System* (New York: Basic Books, 1987) and Rosemary Stevens, *In Sickness and in Wealth: American Hospitals in the Twentieth Century* (New York: Basic Books, 1989). On child public health, see Richard A. Meckel, *Save the Babies: American*



*Public Health Reform and the Prevention of Infant Mortality, 1850–1929* (Baltimore: Johns Hopkins University Press, 1990). For a comparative perspective, see Deborah Dwork, *War Is Good for Babies and Other Children: A History of the Infant and Child Welfare Movement in England, 1898–1918* (London: Tavistock, 1987) and Cynthia R. Comacchio, *Nations Are Built of Babies; Saving Ontario's Mothers and Children, 1900–1940* (Montreal: McGill-Queen's University Press, 1994).

2. On child welfare in the Progressive Era and after, see Linda Gordon, *Heroes of Their Own Lives: The Politics and History of Family Violence, Boston, 1880–1960* (New York: Viking, 1988), 59–81; Linda Gordon, *Pitied But Not Entitled: Single Mothers and the History of Welfare, 1890–1935* (Cambridge: Harvard University Press, 1994); Michael B. Katz, *In the Shadow of the Poorhouse: A Social History of Welfare in America* (New York: Basic Books, 1986) 113–45; Molly Ladd-Taylor, *Mother-Work: Women, Child Welfare, and the State, 1890–1930* (Urbana: University of Illinois Press, 1994), 74–103, 167–96; Robyn Muncy, *Creating a Female Dominion in American Reform, 1890–1935* (New York: Oxford University Press, 1991), 38–65; James T. Patterson, *America's Struggle Against Poverty, 1900–1980* (Cambridge: Harvard University Press, 1981), 20–34; and Walter I. Trattner, *From Poor Law to Welfare State: A History of Social Welfare in America* (New York: Free Press, 1974), 96–135, 179–247. For contemporary perspectives, see Robert Hunter, *Poverty: Social Conscience in the Progressive Era* (New York: MacMillan, 1904) and John Spargo, *The Bitter Cry of the Children* (New York: MacMillan, 1906).

3. For omissions of these images from histories of medicine, see Daniel M. Fox and Christopher Lawrence, *Photographing Medicine: Images and Power in Britain and America Since 1840* (New York: Greenwood Press, 1988), Janet Golden and Charles E. Rosenberg, *Pictures of Health: A Photographic History of Philadelphia Health Care, 1862–1945* (Philadelphia: University of Pennsylvania Press, 1991), and Rick Smolen and Phillip Moffitt, creators, *Medicine's Greatest Journey: One Hundred Years of Healing* (Boston: Bullfinch Press, 1992). Fox and Lawrence discuss their decision to focus on medicine rather than public health at large; Golden and Rosenberg incorporate some public health images (including some from the Carpenter Collection that focus on

housing and education) but do not discuss the links between medicine and welfare. Smolen and Moffitt employ a narrow definition of public health.

4. The Carpenter Collection slides are located at the College of Physicians of Philadelphia. See Janet Golden, "The Howard Childs Carpenter Slide Collection," *Fugitive Leaves*, 3rd ser., 2 (1987): 5–6.

5. Information about the DPD can be found in Jeffrey P. Brosco, "Sin or Folly?: Child and Community Health in Philadelphia, 1900–1930," Ph.D. dissertation, University of Pennsylvania, 1994; Charles V. Dornwarth, "The Establishment of a Department of Preventive Medicine in a Hospital Treating Children," *Archives of Pediatrics* 34 (1917): 206–10; Haven Emerson, *Philadelphia Hospital and Health Survey* (Philadelphia: Philadelphia Health and Hospital Survey Committee, 1930), 263–65, 430–33, 689–92; "Ignorance Given as Disease Cause," *Philadelphia Inquirer*, Dec. 16, 1921; and the annual reports of the Children's Hospital of Philadelphia. For a general history of the Children's Hospital of Philadelphia, see Samuel X. Radbill, "The Children's Hospital of Philadelphia," *Philadelphia Medicine* 70 (1974): 352–67. Biographical information on Carpenter can be found in Samuel X. Radbill, "Memoir of Howard Childs Carpenter, M.D. (1878–1955)," Radbill Papers, College of Physicians of Philadelphia; Philadelphia Pediatric Society, "Special Meeting, May 18, 1933" (pamphlet); Joseph Stokes, Jr., "Memoir of Howard Childs Carpenter (1878–1955)," *Transactions and Studies of the College of Physicians of Philadelphia*, 4th ser., 24 (1956): 41–42; "H. C. Carpenter, Pediatricist, Dies," *Philadelphia Inquirer*, Apr. 8, 1955, 34; *New York Times*, Apr. 8, 1955.

6. Other sources of slides in the collection were the National Exhibits Company, Providence, R.I.; John F. Sweeny and Son, High Class Lantern Slides, New York City; J. A. Glenn, Albany, N.Y.; Foltz, Washington, D.C.; Victor Animatograph Company, Davenport, Iowa; and the Standard Slide Corporation, New York City.

7. According to the "Ignorance Given as Disease Cause" article in the *Philadelphia Inquirer*, his talk included "a series of slides showing the results attained from disease prevention methods, how poor mothers and children were taught to visualize prevention means through pictures, and the remarkable results."



8. For example, Carpenter's colleague Dr. William Bradley, medical director of the Starr Centre clinics, regularly gave lectures on "Care of the Baby," "How to Feed the Baby," and "The Fly and the Baby." See Starr Centre Association, Minutes of the Milk and Medical Committee, Feb. 1, 1912, Series 3, Folder 87, Box 5, Center for the Study of the History of Nursing, University of Pennsylvania, Philadelphia.

9. Maren Stange, *Symbols of Ideal Life: Social Documentary Photography in America, 1980-1950* (New York: Cambridge University Press, 1989), 5-6.

10. Peter Bacon Hales, *Silver Cities: The Photography of American Urbanization* (Philadelphia: Temple University Press, 1984), 221. On using images in exhibit posters, see Evert G. Routzahn and Mary Swain Routzahn, *The A B C of Exhibit Planning* (New York: Russell Sage Foundation, 1918), 50, 69. Note that I have distinguished between health teaching directed at a particular audiences and health education that had a broader reach and used newer media, including radio after the 1920s and, later, film.

11. John R. Kemp, *Lewis Hine: Photographs of Child Labor in the New South* (Jackson: University Press of Mississippi, 1986); James Guimond, *American Photography and the American Dream* (Chapel Hill: University of North Carolina Press, 1991), 57-98; Judith M. Gutman, *Lewis W. Hine and the American Social Conscience* (New York: Walker & Co., 1967); Judith M. Gutman, *Lewis W. Hine: Two Perspectives* (New York: Grossman, 1974); Alan Trachtenberg, *Reading American Photographs: Images as History, Mathew Brady to Walker Evans* (New York: Hill and Wang, 1989), 164-230. On Hine's influence on the Farm Security Administration photography project, see James Curtis, *Mind's Eye, Mind's Truth: FSA Photography Reconsidered* (Philadelphia: Temple University Press, 1989), 8.

12. Hales, *Silver Cities*, 247-48.

13. The use of the lantern slide lecture to arouse moral indignation and the adoption of the technique by Philadelphia reformers, specifically the Octavia Hill Association, is described in Frederic M. Miller, Morris J. Vogel, and Allen F. Davis, *Still Philadelphia: A Photographic History, 1890-1940* (Philadelphia: Temple University Press, 1983), 121-22. For a description of social investigators seeking candid glimpses of the poor in back alleys, see Alan Thomas, *Time in a Frame:*

*Photography and the Nineteenth-Century Mind* (New York: Schocken Books, 1977), 136; Hales, *Silver Cities*, 163-217; Stange, *Symbols of Ideal Life*, 1-87; and Trachtenberg, *Reading American Photographs*, 164-230.

14. Stange, *Symbols of Ideal Life*, 47-87. Susan Sontag notes that many photographers were enraptured by what she terms "melancholy objects" and observes that they created a "habit of seeing" that was "detached." Sontag, *On Photography* (New York: Farrar, Straus & Giroux, 1973). Hales specifically termed Riis's work both "moralistic" and "voyeuristic." Hales, *Silver Cities*, 224; Guimond, *American Photography*, 80.

15. Samuel H. Preston and Michael R. Haines, *Fatal Years: Child Mortality in Late-Nineteenth-Century America* (Princeton: Princeton University Press, 1991), 97-102, 150-54, 166-67.

16. Similar images of Philadelphia can be found in George W. Norris, *The Housing Problem in Philadelphia* (Philadelphia: J. J. McVey, 1913) and in the photograph collections of the Philadelphia Housing Association and the Octavia Hill Association, Urban Archives, Temple University, Philadelphia.

17. Thomas, *Time in a Frame*, 135-52.

18. *Ibid.*, 143-44. Of course, before-and-after imagery long predated photography. Thomas notes that J. T. Barnardo, an evangelical preacher and medical student, raised funds for his juvenile mission in London using before-and-after images.

19. Naomi Rogers, "Germs with Legs: Flies, Disease, and the New Public Health," *Bulletin of the History of Medicine* 63 (1989): 599-617.

20. Charles V. Chapin, "How Shall We Spend the Health Appropriation?" *American Journal of Public Health* 3 (1913): 202-8. A broader discussion of the "new public health"—the application of scientific knowledge to social problems through, among other things, popular education—can be found in Barbara Gutman Rosenkrantz, *Public Health and the State: Changing Views in Massachusetts, 1842-1936* (Cambridge: Harvard University Press, 1972), 128-76. See also Karen Buhler-Wilkerson, *False Dawn: The Rise and Decline of Public Health Nursing, 1900-1930* (New York: Garland, 1989).

21. Fox and Lawrence, *Photographing Medicine*; Stanley Burns, *Early Medical Photography in America* (New York: Burns Archive, 1983); George Rosen, "Early Medical Photography," *Ciba Symposium* 4 (1942): 1344-55; Daniel M. Fox and

James Terry, "Photography and the Self Image of American Physicians, 1880-1920," *Bulletin of the History of Medicine* 52 (1978): 435-57. Physicians could, of course, be reform photographers or child public health photographers. Allies from the City Health Department, for example, went prowling with Jacob Riis on his sojourns through the slums of New York. Hales, *Silver Cities*, 163-217.

22. Regina Markell Morantz-Sanchez, *Sympathy and Science: Women Physicians in American Medicine* (New York: Oxford University Press, 1985), 271-72.

23. Children's Hospital of Philadelphia, *70th Annual Report* (Philadelphia, 1926), 10, and *75th Annual Report* (Philadelphia, 1931), 12. During this period, the outpatient departments of the hospital were staffed entirely by male physicians. See Brosco, "Sin or Folly," 125.

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